

# **A Cat of Nine Lives – and the Beat Goes On**

**Living with heart disease**

**Second Edition**



**by Brian Halton**

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# Forward to the First Edition

‘A Cat of Nine lives - and the Beat Goes On’ written by Brian Halton gives an up-close look at his cardiac journey which is intermingled with personal stories and details of 32 years of cardiac ‘events’.

It begins with his first warning sign of heart disease, breathlessness in 1979 to his first full open heart surgery in Wellington Public Hospital in 1983. These were early days of coronary bypass surgery with fewer drug options and without the technology available today. But the operation and subsequent recovery went well. Good and active years followed. Brian had every reason to believe after nearly 17 years the beat would go on.

What followed from 2000 were 3 years mixed with more heart attacks and more surgery .Brian’s experiences with coronary surgery even went international with him needing surgery in Holland with added complications of insurance, travel home, wheel chairs and oxygen bottles.

In the last 12 years the pattern of cardiac events have continued. In total Brian has experienced 2 coronary Bypass surgeries, 9 Angiograms, 7 angioplasties, 11 Stents, cardiac arrest, and a pacemaker. His story is one of remarkable resilience, determination and courage supported by his wife Margaret and a dedicated team of cardiac specialists.

Anyone facing cardiac care should sit down and read Brian’s journey for it shows there is life after a heart attack. The key is to get on with living.

**Hon. Annette King**  
**MP for Rongotai**

# Preface to the Second Edition

The appearance of a second edition of this booklet is something that I had never thought likely. However, the more than favourable comments received from cardiac patients and others since it became available in early 2015, when coupled with my own coronary events since then justify it. The original “Postscript” now appears as a separate updated chapter *Life after VF (Cardiac Arrest)* and a new chapter entitled *Atrial fibrillation – a consequence of CHF* has been added to bring matters to April 2018.

Once again, I thank Rebecca Hurrell of Christchurch for her patience, good counsel, first-rate editing, and providing this on-line version. My family are especially generous with their support, and my university colleagues continue to do more than tolerate my presence. I cannot imagine that a third edition will appear.

**Brian Halton**

# Dedication

Both editions of this booklet are dedicated to the staff, past and present, of the Coronary Care units of Wellington and Wakefield Hospitals, and Wellington the Free Ambulance Service.

I especially acknowledge my cardiologists and surgeons Ron Easthope and Bede Squire to 2000; Phil Matsis, John Riordan, Mark Simmonds, Scott Harding and Alex Sasse from 2000. That they have tolerated me for so long shows the resilience of their hearts.

My GP, Dr Richard Hornabrook, has put up with me for longer than either of us expected. I am especially appreciative of his care, attention, friendship, and humour.

**Brian Halton**

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**Books have a unique way of stopping time in a particular moment and saying: Let's not forget this.**

Dave Eggers

**Scars have the strange power to remind us that our past is real**

Cormac McCarthy: *All the Pretty Horses*

**Enjoy life. There's plenty of time to be dead**

Hans Christian Andersen

**Time is nature's way of preventing everything from happening at once**

Ray Cummings: *The Girl in the Golden Atom* 1922, Ch. V

**When you are measuring life, you are not living it**

Mitch Albom: *The Time Keeper*

**Time moves slowly, but passes quickly**

Alice Walker: *The Color Purple*





# Prologue

“Me, a cat?”

“Never!”

“Not a little moggie – a tiger maybe!”

Or so an imaginary conversation I had with myself went.

But then “*Unlike our cats, Kiwis don’t get nine lives*” headed Jane Bowron’s Dominion Post column on December 29, 2014 (p.A9) two days after I came home from Wellington Regional Hospital having suffered my eighth heart attack. I can only accept that statement if it applies to NZ born Kiwis.

My first heart attack was some 35 years ago on March 25, 1983 to be precise, a day ingrained in my memory. It has taken until now to write this biography of events since then, simply because I have been too busy to fit it in with my professional life and my family. Now, on my ninth life (but who’s counting!) and having suffered seven further heart attacks (infarcts) since 1983, the time could not be more appropriate.

What follows is a personal account of the trials and tribulations, the ups and downs, and simply excellent enjoyable and full life I have had since then. It was initially published in 2015 and is revised here as a second edition because of events since then. It is not a guide to what to do following a heart attack and surgery as I am no medic and no expert in the subject of cardiac rehabilitation. It summarises my experiences in the hope that it provides some insight, even assistance and encouragement to others through post-infarct trauma, post-cardiac surgery, and any subsequent intervention they may have so that they, too, might have a full and meaningful life with coronary disease. So;

“Am I a cat?”

“No, not the simple little moggie – *definitely a tiger!*”

My life began in the early hours of March 9, 1941 in a maternity home in the town of Accrington in Lancashire, England. My home was at 13 Coronation Street in Great Harwood, a small nearby cotton town to the north. The events of my professional life have already been recorded in the autobiography “*From Coronation Street to a Consummate Chemist*” that is available for free download from Victoria University of Wellington (see: <http://www.victoria.ac.nz/scps/about/attachments/from-coronation-street-to-a-consummate-chemist.pdf>). The details are not repeated here. Rather, I provide a short synopsis that takes me to 1979 and then concentrates on the events and health issues from that time.

Apparently I was a sickly child and the period from 1946 to 1948 saw me contract all the typical childhood diseases. These culminated in a diagnosis of bovine tuberculosis contracted from contaminated milk. As there was no suitable surgery available in Lancashire at that time, my parents located a specialist at Great Ormond Street Children's Hospital in London and the surgery on my neck was performed there on November 15, 1948. The date is remembered because Prince Charles was born the evening before and the street I could see from the hospital window was decorated and the passing trams decked in flags. Recuperation was slow and I spent much of 1949 in the country air. Although I recovered fully from the bovine TB, I was discouraged from playing wind instruments at school. I was at boarding school from 1952 until 1958 and my only sporting success came from cricket and even that was at the lower end of things.

So I grew up in Lancashire but then moved to south-east London in the summer of 1956 though I remained at the same Blackpool boarding school for a further two years. Gaining the English 'O' and 'A' level certificates, the latter at St Joseph's Academy in Blackheath. I entered the University of Southampton in the autumn of 1960, as a State Scholarship winner. I gained a BSc with honours in chemistry in 1963 and proceeded to doctoral study in the same institution graduating with a PhD in organic chemistry in August 1966.

That was when my professional life and career really started. I was employed as a postdoctoral fellow at the University of Florida in the US, and within a couple of months of starting work with the then Dr Battiste, I was offered a limited term Assistant Professorship from the commencement of the fall term the following year. Then, in September 1968 I began my association with the Chemistry Department at the Victoria University of Wellington (VUW) as a lecturer and my life-long stay in NZ and its capital.

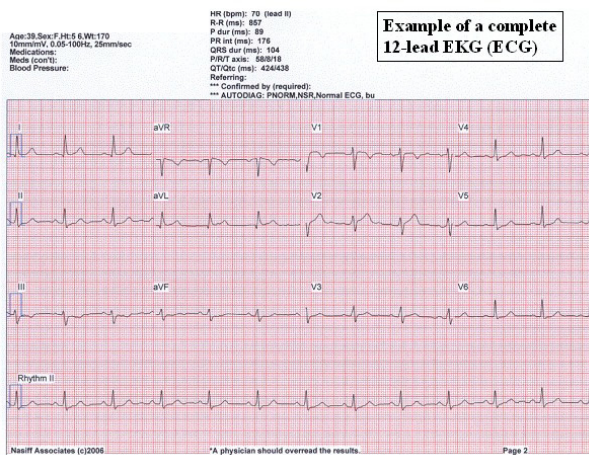
I met Margaret, my future wife, the following year and we married in May 1970. She completed her tertiary education in 1971. My career slowly developed and our family grew. Late 1974 gave me a sabbatical back in the UK, with research in Reading and family connections for Margaret and our two-year old son, Mark. My career in chemistry progressed with further promotions that culminated in a Readership in January 1977, by which time I was the proud father of two boys, Paul the 1976 addition.

## The Advantage of Hindsight

Hindsight is a wonderful thing, or so it seems as the time from an incident to its subsequent recall grows. Although my introduction to coronary care took place in March 1983, the benefit of time and recall has allowed me to put that first dramatic and drastic event into some sort of perspective. As I best recall things, the first hint of heart problems must have been in August 1979 when I returned to the Victoria University campus from downtown Wellington. I did this very rapidly up the steep steps by the side of St. Mary of the Angels Church on Boulcott St. to the Terrace and then on and up to the VUW Staff Club. I was more than simply out of breath but I recovered fairly quickly and gave the matter no further thought, other than an “Oh, that was a bit silly. Should have taken it more slowly”. I wonder how many others have had similar thoughts years later. Was it a warning or am I becoming paranoid? I simply do not know!

The second event had more impact and with hindsight it was a warning, which either I did not recognise or accept. September 1981 marked the start of my second sabbatical leave from VUW, this time to be spent in Salt Lake City (SLC), Utah. It was a great place to take a young family – the boys were nine and five years old. The time there was magical with superb hospitality, and the boys’ education set to the local primary school. My research went well and my colleague, Peter Stang and his family remain close friends. Winters in Utah are cold with significant falls of snow. The 1981-1982 year was no exception and we thoroughly enjoyed the winter activities. That was until one morning early in 1982 when the snow had come all the way down to our semi-basement apartment door. Snow shovelling was demanded. I put on warm clothing, got the shovel and opened the door. A gasp of icy cold air hit my lungs and I had pain in my chest. I went back indoors, sat for a while then went back out, this time with no such dramatic impact and got enough of the snow moved for us to get out fairly easily. I had no repeat experience. Of course, I assumed that this was simply me exiting from a warm apartment to a very cold exterior, but again the voice of hindsight says: “No, it was not – it was an indication of heart problems to come”. But it did not shout out loudly enough at the time and I continued on as I had. I can think of no recurrence and had no further incident until the following year. Had it been today, then I would seek medical examination but back in 1982, as a (supposedly) reasonably fit 41 year old, it was just one of those things.

And so our time in SLC passed and provided us with a treasure trove of happy



A complete 12 lead electrocardiogram (ECG) (from [www.ndsu.edu/pubweb/~grier/eheart.html](http://www.ndsu.edu/pubweb/~grier/eheart.html))

memories. Our return to Wellington was completed by mid-June and I was straight into second semester teaching, doing my normal year's work over the one semester, catching up with my graduate students and getting more academic publications written. However, by late February of 1983, my health deteriorated.

I had not been particularly active, driving to work and using the lawn mowing and general gardening as my weekly exercise. My medical advisors thought that the problems were gastric in origin and an internal examination thought desirable. However, one weekend before the examination happened, while driving into town, I had more severe pains, this time a bit higher up. I paused, and when they essentially disappeared I returned home. My wife took me to the Wellington Hospital A&E department and, after the lengthy delay an ECG (electrocardiogram) was recorded – it is a simple procedure that uses electrodes to record the electrical performance of the heart (see Fig. 1). The result showed a normal rhythm with nothing to indicate a heart attack. I was prescribed Ventolin and sent home with the advice to take it a little easier.

The so called gastric problem remained and a gastroscopy was scheduled for April, despite some indications of possible coronary problems. The atypical cardiac symptoms continued. Then, during the early hours of the morning of Friday March 25 the pains became severe. The on-duty GP was called (house and night calls were the norm in those days). By the time she arrived the pains had subsided a little. I was given a hefty dose of morphine and spent the day with the angels! Late that afternoon I was recalled by my GP who recorded a new ECG. This time it showed differences from that recorded earlier at the hospital and a heart attack (infarct) was diagnosed. Hospitalisation was prescribed, though not by ambulance but via home to pack a bag.

In those days the Wellington cardiac ward was housed in the Seddon wing

that was used for 30 years from 1966. What I have not said till now is that at that time I was a smoker and used up to twenty cigarettes a day. I knew that my smoking days were almost – but not quite – over. I had a cigarette as we left home in the car and then my last ever, which was extinguished on the doorstep of the Seddon wing. I was expected, put through the usual admission process and allocated a room on my own. It was a large airy room and, apart from me, it housed numerous oxygen cylinders. The number of ‘No Smoking’ signs was notable and whoever it was that put me, an organic chemist, in with the oxygen cylinders had the clear intent that I would never smoke again.



The Seddon Wing Wellington Hospital, 1966 (from Photographic Department, Wellington Hospital / Wellington School of Medicine); with permission

At that time smoking was recognised as a significant contributor to heart disease, but it was not thought of as the demon it is in the 21<sup>st</sup> century. I think that at just 42 years of age I was the youngest cardiac patient under care. Most were older people many of whom had been smokers through their lives. While the staff encouraged everyone to give it up, if they could, there was no compulsion to do so and there were areas of the ward where smoking was permitted. One of these was outside the internal window of my room with the oxygen cylinders on my side! Although I thought it would be good to have another smoke, I knew that my room was no place for that and after the time I was there – six days without a cigarettes – the worst of the withdrawal symptoms were over. I had given up – well almost so. In those days I used to buy cigarettes, not by the 20 pack but by the 200 carton. And I had bought

one shortly before the events of March 24/25. When I got home, Margaret had 'relocated' the carton and put the ashtrays away so as to be out of sight. But there were too many packets left to simply dispose of them in the rubbish! I was determined not to smoke again but I kept and hid one pack so as to open and smell the tobacco from time to time. The solution to disposal was comparatively easy. My local priest, Mick Cahill, was a smoker and I could think of no better way to dispose of some eight packs of Rothman's than to give them to him. He was most grateful, though, sadly, he died from cancer many years later.

Even back then it was known that smoking was linked to heart disease but for so many of us raised through the WWII years and after, the habit was the norm with the vast majority of us smokers. My father had been a smoker and our home was filled with the (then) agreeable odour. His habit impacted on his life in that in 1964 he suffered a small stroke, but not a heart attack. The cause was (ultimately) linked to his carotid arteries that were significantly blocked and for which there was no recognised cure. However, surgeons at London's St. Tomas's Hospital were carrying out exploratory arterial cleaning surgery (carotid endarterectomy) that was very much in its infancy. After much soul searching with my mother, he elected to have this done. Unfortunately, while the surgery was successful in itself, the dramatically increased blood flow to his brain put him in a coma from which he never recovered. He died in mid-1965 at just 59 years of age. Thus, while smoking is a clear contributor to heart disease, there is one thing that I could not control, namely my genes and they must have had an impact.

My discharge from hospital was on Good Friday, April 1 of 1983 and it was a seriously happy day for me! I was driven home by Margaret, took time to look over the valley and slowly made my way down to our home on Croydon Street in the Wellington suburb of Karori. Walking was difficult, angina came on moderately quickly despite discharge medications of metoprolol (a beta-blocker that affects the heart and circulation, which is used to treat angina and high blood pressure; it also aids in the prevention of a further heart attack). Trinitrin was also prescribed for angina (the relief of chest pain). The range of options was smaller then and the medications often much less effective than now. However, the advice proffered on leaving the hospital is as valid now as it was then: *"It's up to you to take responsibility for your health. Don't start smoking again and make sure you take your medication"*. I was lucky. In 1983 the survival rate from a coronary infarct was just 50% and I was among



the fortunate half. My way of life had to change. There was an automatic stand down period from driving, six weeks I think, but I was in no position to even think of such things.

## **Recuperation, Reassessment, Surgery and the Aftermath**

### ***Recuperation***

Once home, I found that eating breakfast or having a shower was enough to thoroughly tire me. I was advised not to walk up steps for some time and in that regard I was especially fortunate. Our single storey home was on the down-side of our hillside street, some 42 steps from the road but with a public right-of-way continuing for some 180 steps to the street below. Once home my escape route had to be down! Once I had built up some strength and was able to walk more, my exercise started by walking down the 180 steps to be picked up by my wife in the car, driven round the road back to the top and then down the steps home. Initially once a day, this extended to a couple of times and then, determinedly, adding in the distance between two lamp-posts each day. The trinitrin medication for the angina I experienced was essential. It was not too soon before I took to walking up the steps and then down the hill, again adding a lamp-post distance each day if possible and being driven back up the hill each time. I graduated to walking up the gentle slope. Self-determination was the order of the day but without pushing it too far. It was (and always has been) the norm for me but even now I find the 'just enough' very difficult – pushing too far manifests itself easily but gauging when enough really is enough is something that I have never been able to do! In any event, I was fortunate and still am.

Margaret was a full-time home-maker and was able to fit the exercises to her schedule but I was becoming concerned about family income and how she and the boys would survive should my life come to an end. I was especially keen to see her develop a career path as income from my 15-year contributed pension would not amount to much and the insurance policies on my life would not see her through the years of the boys schooling to come. The house was, however, secure as mortgage protection insurance was held on the property, mandatory for 'state servants under transfer', which I was when we got our mortgage. Margaret had been involved with university laboratory

demonstrating and home tutoring secondary and tertiary students. It seemed the direction that she should move in.

## ***Reassessment***

The exercise regime lasted for almost four weeks before the scheduled exercise test towards the end of the month. This was to better assess the impact of the infarct on me. In 1983, and until close to the turn of the century, the cardiology clinic at Wellington Public Hospital was on the level above the main entrance. Even then its furniture was old and dilapidated and following one's cardiologist from the reception area to the station where he wanted you was something of a challenge.

What was notable about the exercise test is that it was conducted towards the back of the hospital and a decent walk from the front clinic. I was walked there by one of the Registrars (I think) at what seemed like a good pace and took the test almost immediately after I got there. To me, the outcome was predictable – my heart function was significantly impaired and I developed angina early once on the treadmill, which was soon stopped. I was advised that my condition could be managed by increased medications for life or that there was a chance for cardiac arterial grafting surgery should further tests indicate this. An urgent angiogram was scheduled.

The angiogram was performed just one week later and required an overnight stay in the hospital. I was admitted early in the afternoon for it to be performed by Ron Easthope with the assistance of a very competent technician. This is the procedure where a radioactive iodide dye is injected into the bloodstream of the heart by way of a catheter inserted into the brachial artery below the elbow. Pictures of the dye circulation around the heart are recorded by the X-ray cameras and show any arterial narrowing. My right arm was secured, appropriate local anaesthetic administered and the catheter inserted. What no one had told me was that, unlike the 21<sup>st</sup> century procedure, the X-ray cameras were static and it was the patient that was moved. Once the cradle started on its Disneyland-like ride I understood! Only with the final dose of iodide and a check of the carotid arteries did the procedure become unpleasant – my world was turned upside down! The incision was stitched (a thing of the past now) and I was returned to the ward. Dr Easthope came to see me later and outlined his findings.

I had severe arterial blockages that likely could be fixed by coronary artery bypass graft surgery (CABG – now pronounced 'cabbage') depending upon my



suitability to the surgical team. Ron was at great pains to point out the advantages and disadvantages of surgery, that it had been available in Wellington for some ten years but only become common from 1976, and that Mr Bede Squire, the surgeon, had gained his training in the area, at Birmingham and Leeds hospitals in the UK. The question was: 'Did I want my name put forward or would I prefer to accept a lifetime regime of medication?' My immediate reaction was 'Yes' to the surgery if my case was acceptable, but the decision was not one to be made alone. The survival rate for CABG surgery was close to 50% and Margaret had to be involved in that decision.

After some detailed discussion and much consideration, our joint conclusion was to go for the surgery despite my father not surviving his. My name was put forward. Sometime in late May when I returned to the hospital for a further cardiology check, I learnt that I had been accepted by the surgical team. The recommendation of Dr Ron Easthope had been accepted; I was regarded as a suitable candidate. I was on the waiting list. I was advised that I would be in hospital for about ten days and that I should have appropriate discussions with my employer. My colleagues in the Chemistry Department were especially co-operative and agreed to pick up my teaching and research supervision from whenever I was summoned for surgery. I was asked to keep up the daily exercise and extend it if possible, and this I did by continuing to walk from home to the office, a distance of some 4 km that took about 40 minutes, which by then I was doing. My medications were increased by including nifedipine (a calcium channel blocker and antianginal).

As it so happened, one of our colleagues who taught secondary school science told us that she was to leave her part-time role at Samuel Marsden Collegiate School and wondered if Margaret might be interested in applying for the position. Fate was again on our side as both boys were in primary school and a part-time position would be ideal for Margaret. She was not as convinced as I because she had no teacher training but, eventually, decided to apply, was interviewed and offered the job. This was more than an element of relief as it offered some further added security to her position.

I will never forget the telephone call I received on the morning of Monday July 18, 1983. I was in my office and found a secretary from the cardiothoracic unit speaking to me:

"Was I well?"

"Yes" I responded

"Did I have a cold?"

“No” I said

“Could I come for my surgery two days later?”

“Yes – but I would need to arrange teaching cover”.

“Then do it” was the response.

My colleagues were good to their words and jumped into the breach.

I was admitted to the Cardiothoracic Ward of Wellington Public Hospital two days later at about 10.30 in the morning. There I was told that routine blood samples were to be analysed for cross-matching as well as the usual analytical tests and that I would be participating in a urinary catheter trial. Unlike present practice, 1983 was in the era when patients did what they were told. There was no polite request – I was involved, simple as that. The ultimate outcome was quite unexpected as we will see. In any event, I was shown around the ward and given verbal commentaries of what was to happen during my stay. Friday saw the urine flow-rate measurements start before the ward round that had me meet Mr Squire and his surgical team. One of the medics who were around my bed was immediately recognisable; he had been a first-year chemistry student who I had taught at Victoria University of Wellington. I never saw him again! Finally, I had a full and detailed dental check. At that time it was thought that there was a definite link between dental decay and recovery from heart surgery; my examination was no different from everyone else's. The afternoon of Sunday July 24 saw the Catholic chaplain visit me and conduct the (then) last rites to be ready for the events of the next day. Margaret brought the boys up that afternoon then in the evening she and I were given a tour of the intensive care unit, always empty at that time of the week. This, I was told, was where I would spend my post-operative time from Monday for two days or so after which I would be transferred back to the ward.

Margaret had started her new teaching position just one week earlier and just how she coped with me undergoing major surgery, the hospital visits, two primary school children, and keeping her cool in the classroom is more than I can ever imagine!

## ***Surgery and the aftermath***

I remember little of the pre-operative detail. Suffice it to say that I was given the necessary sedative and taken to the operating theatre where full sedation was administered prior to the arterial grafting (bypass) procedure. My first memory is one of travelling down the dark tunnel towards the bright circle of light in the distance. Many are said to have experienced this and to me it

was real. Although conscious, I had no sense or feeling. It seemed as though I was being bounced up and down and I decided I needed to tell someone, but nothing would move, not even a little finger. But I did hear someone say: "Well, that's a good job done". Then I drifted off. Subsequently, I presumed that this coming to before things had been completely finished was when my chest was being tied up tightly (tying with nylon was the order of the day then) and I imagine it was from minimising the quantity of anaesthetic administered (see below).

When I came to, I was in the intensive care unit, but I have few memories of it, the ward or indeed most of the following week. I do remember being on a bed, naked I think, with a lady alongside me who had also had chest surgery. When I next came to, her modesty had been restored to the extent that her chest was covered with a brown paper towel. Margaret came to visit then and the next day, though I have no memory of it at all. In fact, since then that week of July 25 has been lost with just one other recollection: that of my two boys visiting the day that I had very weepy time, a known aftereffect then; the boys did not know what to make of me. I was told that CABG surgery was likely to make me more emotional and that has certainly been the case, but then tears clean the windows of the soul!

Back then, heart attack and cardiothoracic surgery recovery was by way of rest and recuperation and it was only on the Tuesday of the following week (August 2) after 12 days in hospital that I was discharged. I gather that I had been up and slowly walking about the ward for a few days before then. I have little memory of it or my return home from hospital, but I do remember having a rolled-up towel to hold against my chest to ease the trauma of coughing or laughing. Throughout this time Margaret was in the early weeks of her teaching with the boys at school, but I have no memory of how she coped while I was in hospital. Once home, I got up shortly before they left, took my new medications, had some breakfast, and shaved while sat on a chair overlooking the Karori valley. It exhausted me and I routinely slept immediately afterwards. A morning shower did the same thing and it took a while before I had sufficient strength to take to walking outside. The hospital discharge included exercises to facilitate my breathing, aid chest healing, and generally build my strength back and they were much appreciated. The new medications were simply warfarin (still used as a blood thinner) at 5 mg per day and iron for mild anaemia that was evident after the operation. All the preoperative heart medications had stopped. The warfarin regime ran for six weeks at which time it was slowly tailed off and Margaret remains convinced that it altered my personality quite significantly for the negative during that two

month period. As always with a heart attack and surgery, there was a period during which I was not allowed to drive. But it did not matter; the recovery was such that I was able to drive long before I really wanted to do.

So, the July 25 artery grafts were successfully implanted. When Bede Squire saw me to tell me of the outcome, he asked me to guess how many bypasses had been inserted. My guess was four. "Not so", he said. "Three or five, depending on the way you count"! What he had done was to insert two sequential grafts so that the vein graft started at one point, spanned to another and then went on to a third location. The third (or fifth) graft had simply by-passed one of the blockages. Thus, two pieces of vein had been used to connect five points; to me five has always sounded better than three!

And so I had survived major cardiothoracic surgery; one of 50% through a heart attack and now one of 50% through bypass surgery. I had emerged in the top 25% – but for how long? As I gained more strength I took more exercise extending the walking regime as before, but this time omitting the 'down the steps' component. To assist with concentration after the anaesthetic I took to solving jig-saw puzzles, and I sorted some old family stamp albums, taking up the hobby. While the former remains a relaxing activity, the stamp collecting stopped a few years ago as letter writing transformed to 21<sup>st</sup> century electronic magic.

The vein taken to recycle as my various bypasses was the great saphenous vein from my right leg. It is the longest vein in the body and was stripped from groin to ankle. While the incision healed quite quickly, the absence of the vein impacted for many years and an elasticised stocking became a part of my wardrobe for occasional use. Even now I prefer a right-hand aisle seat on an aircraft so that I can stretch my right leg into the aisle. From 1983 onwards, and for more than 20 years, it was essential and it has been only over the last five that I can bend the knee back beyond 90°. But that has been a small price to pay for the life that the surgery has given me.

After the mandatory six week recuperation and the warfarin had been stopped, the pre-operative angina was a thing of the past. I was able to walk a good distance, was allowed to return to the office and was back to lecturing from early September following discharge by Bede Squire and Ron Easthope early that month. The post-operative consultation with Squire led to daily aspirin for one month, the norm at that time. However, the significant event at that meeting was being given the prognosis that if I were lucky, I might live for five years. Mr Squire recommended that the word *longevity* be deleted from my dictionary and vocabulary – but then I had the same prognosis again in 1988!

The post-operative dietary recommendations were simple. The year 1983 saw the New Zealand medical profession recommending a reduction in dietary fat. As a post-CABG patient this was quite forcefully presented to Margaret and me. We were strongly advised to reduce the quantity in our daily diet. Saturated fat was the one to cut back on and so it has been that since about August 1983 all our meat has been trimmed of fat, and chicken skinned before cooking. We were also told to reduce the salt in our diet and so we minimised its use, adding it to cooking but only rarely adding it subsequently. We also cut back on the infamous cocoa bean – chocolate! Low fat milk options were not available then but when trim milk was marketed in the 1980s we moved to it and then to the calcium added varieties.

My initial return to the office and teaching proved tiring and I was fortunate in being able to mix the time there with some teaching, some research discussions and short stays; my colleagues continued to pick up the bulk of my teaching duties. Throughout my illnesses my research students had been very supportive, visiting me at home and bringing over their latest results. It kept the grey matter functioning and I suspect that it played a very significant part in the mental recovery from the major medical trauma.

The impact of the 1983 anaesthetic must be noted. At that time it was the accepted norm for 15 minutes of anaesthesia to require one week of recovery time. My procedure took over six hours and closer to six and a half. Thus, recovery from the anaesthetic took almost six months. This did not mean that I was unable to function. What it did was to have me tired mid-evening over the first couple of months and for this to gradually dissipate such that only by late January of 1984 was the full impact gone.

In early December I returned to Wellington Hospital for a postoperative exercise test and by then I was on no medications at all. Whereas I had walked from the front of the hospital for the post-infarct test, this time I was taken from the clinic for the test in a wheelchair! The report from Ron Easthope to my GP (which I have only recently gained access to) states: *“He was able to complete the full Bruce Protocol (the formal name for the test), 15 minutes of exercise with no angina, no ECG changes and a normal heart rate and blood pressure response. .... He has had an excellent result following coronary bypass graft surgery”*.

## The Best Years – 1984-1999

The early part of 1984 saw me fully recovered from the events of the previous year. What had to be done was to radically change my lifestyle. The 30+ minute 4 km walk to the office had become a matter of routine. I even walked at least half way home much of the time and all the way occasionally, including some 250 steps up the hillside. And the smoking had definitely gone. But that was not enough. I had to alter my work routine to better fit to an efficient operation that gave me a full life in my chosen profession as well as quality time with my family and with my wife. To me, efficiency had to become the norm rather than the exception and one move in this direction was by separating secretarial from my own responsibilities. Slowly things changed with time allocated to teaching duties that allowed for full course preparations and revisions on the one hand, and research activities and writing on the other. All of this fitted with my self-determination never to be a couch potato and to make the most of every day. After all, the old adage states: *Yesterday is history. Tomorrow is a mystery. Today is a gift (from God). That's why it is called the present.*

My colleague from Salt Lake City visited in mid-1984 and we both attended a major international conference in Auckland that August. Then, by the end of that year there was a reasonable balance and life was as good as it gets; it was one of the better years all round. It was a year significant for research with some excellent outcomes posted by my highly competent research students. My eldest son had entered his final year of primary school and Margaret was thoroughly enjoying her teaching. This was to the extent that she had sought and gained approval to enter formal part-time teacher training whilst still at her school.

I had a follow up consultation with my surgeon Bede Squire mid-year, and another with my cardiologist Ron Easthope in November. Both saw no deterioration in my condition and I was further advised not to travel internationally until two years after the surgery.

The most significant event came from two (then) DSIR colleagues who came to seek my approval in June for nomination to the New Zealand Institute of Chemistry (NZIC) Vice-Presidential sequence to accede to the Presidency for the 1986-87 year.

Was it going to be too much effort?

Could I cope with this on top of my regular job and its demands?

Would it impact on my condition?

Question after question and no logical solution!

It took a long time to come to the conclusion that the confidence my Wellington-based colleagues had in me could not be ignored and, eventually, I agreed to let my name go forward on the condition that I could withdraw should health reasons dictate it.

The nomination was successful and I began what has proved to be a more than 30 year association with my professional organisation in almost every role save those of the Registrar and Secretary. My involvement started in October that year and the initial work load was easily managed. Everything was running well and I was having no health issues at all. This continued through 1985 when I accepted an invitation to visit colleagues in Israel and undertake a lecture tour prior to attending a thematic conference in Scotland. Everything went well. However, in November I developed acute prostatitis (rectified by medication) that had me referred to a specialist who performed a cystoscopy examination early the following year. Although the formal reports make no reference to it, the consultant told me that they had found a very small piece of catheter almost certainly left behind from the test one used before the CABG surgery. While this was not welcome news and revived memories of the urinary flow tests of 1983, there have been no subsequent aftereffects.

From then and for almost 17 years post-CABG surgery I had neither recurrence of angina nor any other indication of heart problems. The checks by Ron Easthope were on an annual basis and those with surgeon Bede Squire biennial. The 1988 consultation with Ron resulted in being prescribed the first heart medication since late 1983 – I was put on a 300 mg daily aspirin tablet as its benefits had by then been proved. This was triple the now traditional 100 mg dose. The consultation with Mr Squire was during his daughter's time at Victoria University where she was studying chemistry. A modest part of the medical review diverted to her chemistry and possible subsequent opportunities, but he did reiterate the earlier prognosis of five more years if I was lucky. By then part charges for such consultations had been introduced but I did not object to paying the \$31 to see Squire. That in 1990 was the last. The health system was undergoing further change and seven years post-operation with no evidence of deterioration in my status could not justify continuation. This applied also to the annual cardiology check by Ron Easthope. This last consultation with Bede Squire was even more notable with most of it spent discussing his daughter and her progress and then I got not the "five years if you are lucky" prognosis but simply "go away and enjoy life". I wouldn't have minded

the consultation time spent on chemistry at Victoria, but having to return to the hospital ground floor and pay \$31 for giving it did seem a bit much!

Everything had progressed remarkably well. My health issues, whilst never going to disappear, were well in check thanks to the lifestyle changes that Margaret and I had been able to introduce from the advice of the coronary care staff. Nevertheless, the issue of prognosis was always at the back of my mind. From 1983, I had targets of hope. The first was to see Mark, my eldest, move into secondary school and that happened in February 1984, then to see Margaret qualify from her part-time teacher training course, which she did in 1988. Each target was set sometime in the future, but never too far away. Then followed travel to the UK and Israel in 1985, the NZIC Presidency, Paul's entry to secondary school and Mark's graduation from it at the beginning and end of 1989, respectively, and a return to Salt Lake City. Each and every one came and went with me still in good health. But any assumption that I would be here to see even one of these things was no part of my thoughts. I was lucky, my maker was watching over me and it was He who would decide when my time was up. Thus, there were hopes and aspirations, but since 1983 they have been tempered always by 'if I am lucky'.

My term as NZIC President had gone well and I was able to cope with six day working weeks easily during it and beyond. I had undertaken a number of overseas lecture tours, progressed in my career, taken on responsibilities as the NZ representative in nurturing what is now the largest international congress in chemistry worldwide. I thoroughly enjoyed all that I did. Mark graduated in design and was gainfully employed, and then married in 1996. Paul left school and was spending time finding himself and what he should do with his life. Margaret had progressed from a senior science teacher to become Head of the Science Department in 1989 and subsequently of Dean of Administration.

Then in June 1999 I started what was to be a three part sabbatical leave, two components in Australia and one, from mid-February of 2000, in Germany. The first part was spent in Central Queensland, where I was able to collaborate with a colleague I had known since the early 1970s. I used equipment not available to me in Wellington. I was based in the University of Central Queensland and provided with a small house on the beachfront in Yeppoon. It was a marvellous way to have winter out of Wellington. I rose early and walked along the rolling hills and beaches before looking for the nesting sea eagles, breakfasting and driving into Rockhampton and the laboratory. Margaret came for the mid-year school break, thoroughly enjoyed the change and



returned to teaching; I was there for two months in total.

In October, I travelled to Canberra to work at The Australian National University with one of my former students, now a distinguished Australian academic who had just been promoted to a full professorship. Daily morning walks to the office were the order of the day, the distance from the on-campus accommodation increased by taking various circuitous routes. However, shortly before my time there was up, I began to feel some minor chest discomfort but not the classical angina, this to the extent that on returning I saw my GP. We agreed that an appointment with Dr Easthope needed to be set up and I was prescribed a nitrolingual pump spray for angina. The appointment had not occurred before we left for Napier and a few days holiday before my departure for Germany. Although I had kept to a regime of regular exercise, we had become somewhat slack with our diet as the years from 1983 faded into the distant past. Diet raised its head again.

## **Angina and Four More Infarcts, 2000-2003**

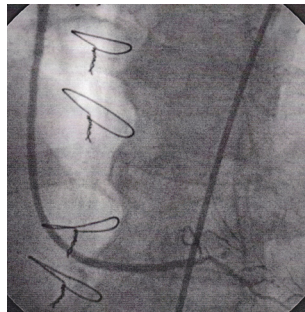
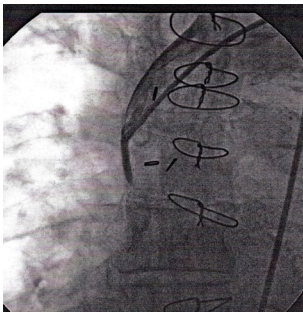
Because I was to be in Mainz in Germany for two months from mid-February 2000, we had decided on an early January summer break. Our beachfront motel on Napier's Marine Parade allocated us to a top floor unit. I carried the suitcases up to the third level, but by the time I got there I had some chest discomfort. It disappeared with a spray of nitrolingual. Later we went to dinner and I had another episode on the way back to the motel. The next morning I was worse. I gave my ticket for the one day cricket international (the NZ vs West Indies game on January 6, 2000) to the motel manager and had Margaret drive us back to Wellington. We had made an appointment with my GP for that afternoon. On seeing me he had me transferred to Wellington Hospital where my second heart attack was confirmed and a new medication regime set in train.

The next morning in Coronary Care, Ron Easthope made a point of seeing me to say that he had been trying to contact me at home but had got no reply to his telephone calls. My recovery over the next few days was apparently good and uneventful and I was discharged home on January 10. But this was not before Ron told me of his intention to retire and recommended a new cardiologist to me. He comments were that should I ever require a neurologist I should make sure I got an old one as they have all the experience in the world.

For a cardiologist, however, he said that the younger ones were the best – they knew all about the modern magic! Ron recommended Dr Philip Matsis, then a cardiologist in the unit, and I have been with him ever since.

Although I was discharged, angina was common to the extent that my walking was limited. Medications had been increased although the aspirin dose fell to one 150 mg tablet a day – one half of that previously. The beta-blocker (metoprolol) that I had been on after the first heart attack was added, and carrying a GTN (trinitroglycerine) spray to ease any subsequent angina became the norm. That period in early 2000 even led me to carrying a disability parking permit. However, some ten days post-discharge things seemed worse and I was readmitted to the hospital, this time with no further infarct but atypical chest pain – which mine has always been. I was advised that coronary angiography was necessary, but that it would have to be performed at Wakefield Hospital, by then Wellington's private heart centre. The catheter laboratory in Wellington Public was out of commission because in the process of refurbishment much new equipment had been flooded. Apparently an air conditioning vent had sloped the wrong way leading to water collection and drainage the only way possible – onto the imaging equipment.

I had two days in Wakefield. Both involved ambulance transfer from Public. The first saw me in one of Wakefield's private rooms with TV – quite a transformation from the public health service. I spent the day there before being returned to Public without having the angiogram done – an emergency deserved



A pre- (left) and post- (right) stented vein graft

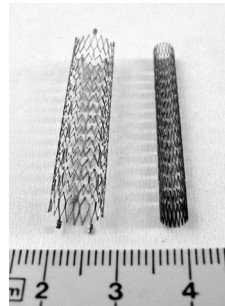
priority over me. I went again the next day but not to a private room. After I waited some time, I had the simple exploratory angiogram followed by angioplasty. This was when Dr Matsis implanted two stents, one into the circumflex artery at is

mid-point, the other into one of the 1983 vein grafts that had elected to show its age and block. I returned to Public and was discharged next day with new medications.

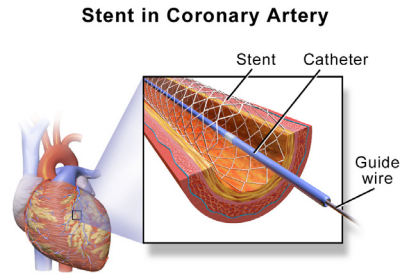
To me this was all new. I had had an angiogram in 1983 that indicated the need for my bypass surgery, but the development of the technique to insert a piece

of metal mesh to hold an artery open was a new experience. The procedure is known formally as PTCA (PCI) (percutaneous transluminal coronary angioplasty; PCI: percutaneous coronary intervention) or simply coronary angioplasty.

It is a minimally invasive procedure to open up blocked coronary arteries and allow blood to circulate (ideally) unobstructed to the heart muscle. It was developed by Andreas Gruentzig and performed for the first time on a patient by him in Zurich, Switzerland in 1977. Major advances have



Left: A bare metal stent (image by Frank C. Müller (Wikimedia Commons)). Right: A stent (Image by Blausen.com staff: Blausen gallery 2014. Wikiversity Journal of Medicine. DOI:10.15347/wjm/2014.010; ISSN 20018762)



been made in its clinical use since then. The first metal coronary stent was implanted as a scaffold to keep the artery open by Puel and Sigwart in 1986 and by 1999 stenting composed about 85% of all PCIs. PTCA was first performed in Wellington in June 1986 by Peter Leslie with Richard Thompson; Leslie completed his 100<sup>th</sup> PTAC in September 1997. By then cardiac centres employed interventional cardiologists to perform these procedures with the first stent implantation taking place in Wellington Hospital in 1994 by David Smyth, then a cardiology locum in the hospital. From 1996, such procedures rapidly increased in number. Phil Matsis is an interventional cardiologist.

The procedure is performed in a catheterisation laboratory (see next page) with the patient being given a local anaesthetic and awake for the procedure. It is usually completed in about 45 minutes. These days this is done using either the femoral artery in the groin, or the radial or brachial arteries in the arm. Access into the artery is created by a device called an *introducer needle* and once access into the artery is gained, a *sheath* is placed in the opening to keep it open and control bleeding. A long, flexible, soft plastic tube called a *lead (or guiding) catheter* is pushed through this sheath and the tip of the lead catheter is placed at the mouth of the coronary artery. The lead catheter also allows for the radioactive iodide dye to be injected into the coronary artery, so that the diseased state and location can be readily assessed using real time X-ray visualization.

During the visualization, the cardiologist estimates the size of the coronary



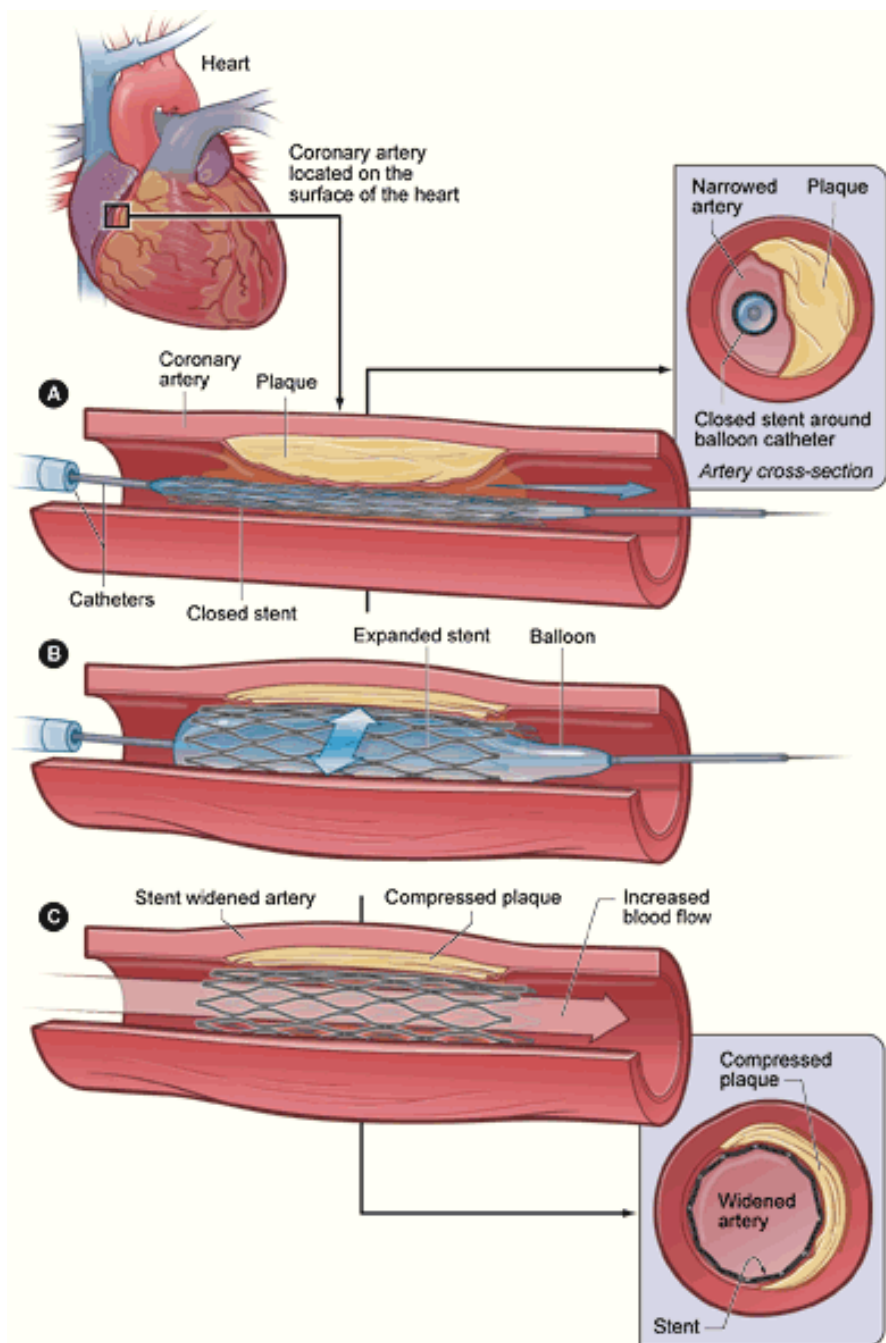
A catheterisation lab

artery and selects the type of balloon catheter, size of stent and coronary guide wire that will be used. The blood thinner heparin is given to maintain blood flow. The coronary guide wire, which is an extremely thin wire with a flexible tip that is opaque to X-rays, is inserted through the lead catheter and into the coronary artery. While again visualizing by real-time imaging, the cardiologist guides the wire

through the coronary artery to the site of the blockage. The tip of the wire is then passed across and through the blockage with the cardiologist controlling its movement and direction by gently manipulating the end that sits outside the patient by appropriately twisting the wire. The wire then acts as the pathway to the blockage. The tip of the balloon catheter is hollow so that it can be inserted at the back of the guide wire putting the guide wire inside it. The balloon catheter carries the unopened stent outside the balloon and these are gently pushed forward, until the deflated stent and balloon are inside of the blockage. The balloon is then inflated to open the stent, compress the built-up plaque and stretch the artery wall. With the stent in place and opened (implanted), it supports the newly stretched open part of the artery from the inside. The balloon is deflated and the catheter removed.

The procedure was simple and quick, and the outcome remarkable. The incision was sealed under pressure using a dome-like device (no stitching). It required some four hours of lying flat before the effect of the blood thinner had worn off enough for the bulb to be removed. After that my leg could be moved again and in a very short space of time I was up and walking about. What is so remarkable about angioplasty is the transition from before to after, and the fact that I could go home the following day. Had I not had a heart attack earlier that month I would likely have gone home the same day and able to drive again almost immediately. However, the heart attack dictated a four week stand down period from driving.

So, I returned home carrying two expensive pieces of metal and a regime of medications. The aspirin continued at the reduced dose, isosorbide mononitrate for angina remained, as did the daily beta-blocker. Atorvastatin, and



Stenting – Image from The National Institutes of Health (public domain)

diltiazem were added. Atorvastatin (Lipitor as it was known in 2000) is a statin given to lower cholesterol levels in the blood. Back then this was not available without formal approval, but from about 15 months earlier approvals came for life; mine is dated 21 February 2000. Diltiazem is a calcium channel blocker that relaxes the muscles in the heart and makes the pumping of blood around the body easier.

Anyone with a high cholesterol level and all those who have suffered a heart attack are medicated with a statin to reduce the level to below 4 millimoles per litre of blood (mine was at its highest ever of 5.8 after the infarct, in itself low in the NZ scale of things – a sister-in-law had been as high as 9). After the statin took effect my level dropped down almost to 2.5, that of a neonatal baby and there was concern that it was too low – but it settled and has been steady and around 3 ever since. These medications were in addition to ticlopidine, an antiplatelet drug that had to be administered to minimise deposition in and on the new stents as they settled in. However, discharge was not that simple. By 2000, coronary care had become far more interactive and I was encouraged to set an appointment with one of the dieticians. I did this and Margaret and I have never regretted it. Apart from what was (to us) an obvious reduction of cholesterol and salt intake, he provided sensible dietary sheets, pointed out the pitfalls for a heart patient dining out and offered many invaluable comments, especially on checking the labels of foods for salt content. However, the one single recommendation that has really had an impact has been always to ask for any sauce served with a meal to be ‘on the side’. It is the sauce that contains all the things a heart patient needs to avoid. By having it in a small dish on the side I find it easy to add as little (or much) as I want and I can see just how much I have had. As I wrote this I was reminded of the groper I had had in Napier before this second infarct – for the first time in months I forgot to ask for the sauce on the side and, because it was the best fish I had had in years I ate the lot. Once in a while it has to be OK! There was one comment from Phil Matsis that I still recall from 2000 and it was this: “Fish is good for you – but only eat the ones that can swim faster than you”. The delectable crustaceans, oysters, scallops, shrimp, prawn, Crayfish and lobster do not fall into the heart diseased patient’s diet – but once in a while .....

All stenting has risks. The stents used in 2000 were known slowly to block again (about 1 in 5 did) causing angina. In those days the stents were bare metal (usually a cobalt-chromium alloy) whereas the modern ones are coated with a drug to minimise subsequent problems. These are termed *drug-eluting stents*. However, irrespective of the type used, medication is prescribed to



prevent further deposition. In 2000, and for many years afterwards, there was a stand down period of six-months before insurance companies would offer international travel insurance. Obviously my travels to Europe had to be put on hold! However, I had purchased a multiple use one year insurance to cover my travels from mid-1999 and the broker assured me that the policy remained valid irrespective of any new heart condition.

Whereas the time prior to the procedure had me with significant angina discomfort, the period after was essentially pain-free. Because of the incredible transition from before to after, there was no need to be depressed or anxious, although the prognosis for me now is always to the next time. It was not the stents rather than the impact of the January infarct that took the most time to recover from. However, by mid-March I felt the need for a holiday and accepted my insurance broker's word. Margaret and I took a week-long holiday on the Gold Coast of Queensland. From then it was a matter of getting my life back on track again. By late July I was back to international travel for the 2000 Pacifichem conference planning meeting and then a period involving more than 14 hours work per day when it was happening – and everything went swimmingly well even though I lost Christmas day by flying back from Honolulu at 12.30 am that morning!

Since that 2000 episode and with the Wakefield Heart Centre fully operational, my medical insurance has covered routine checks with Dr Matsis there. That in October 2000 recorded a cholesterol level of 2.8 millimolar. These checks continued on an annual basis and 2001 saw me return to Japan for a committee meeting late in the year. By then arrangements for the sabbatical postponed from February 2000 were in place. I was set to travel via London to Norway and then to Germany to lecture and have research discussions with colleagues. So it was that in May of 2002 I left for London, where I spent the weekend with my son, daughter-in-law and four month old granddaughter, the first of the grandparents to see her. Although a short visit, it was needed as I had not seen that part of the family since 1998. The time in Norway had me in Bergen most with a delightful weekend spent in a cabin on the Hardangerfjord with my hosts and two of their friends. After two working weeks in Norway I left for Germany, gave a few lectures in the Ruhr and then settled to my second visit to the Max Planck Institute for Polymer Research in Mainz on the Rhine. Everything was going well and I made a couple of professional visits to Heidelberg and Darmstadt in the early part of June. The period from June 14-18 was set aside to visit colleagues in Utrecht and Nijmegen on the Friday and Monday with the weekend free to explore the museums of Amsterdam.

## ***Hospitalisation in Holland***

I awoke on the morning of Friday, June 14, having had a rather poor night's sleep that I put down to dinner at the local Greek restaurant. I made my way to the railway station and took the train to Utrecht. However, the journey was not pleasant. I became sweaty and uncomfortable but had little in the way of angina. Heart problems seemed to be emerging again! At the station, my colleague was not to be found and I waited there, uncomfortable. Eventually he appeared and took me to the University. However, after a short time it was obvious to me that I could not give a lecture and I needed to get to a hospital. I phoned my emergency medical assist number and set things in motion for what proved to be a rather lengthy stay in The Netherlands.

I was taken to the University Hospital, admitted and, following the appropriate blood tests, was told that I had suffered another heart attack, my third. Unlike New Zealand, The Netherlands locate their hospital patients at whichever centre has available space as the country is small and transportation easy. The University Hospital could not keep me and I had to be moved. I suspect that it was this that forced home to Leo, my host, the situation that he was now in. The worst case scenario for a host has to be to have a visitor from the antipodes hospitalised on his patch and likely to be there for a while. Negotiations Leo had with the administrative staff led to me being located at the hospital in a small town of Zeist to the east of Utrecht and close to his home. I went there by ambulance that Friday night. Being hospitalised in a foreign country, not speaking the language and knowing very few people is a truly traumatic event. I can vividly recall the feeling of hopelessness and isolation. There was nothing I could do but accept the situation, stay strong and move on.

Diakonessenhuis Zeist, as my new home was called, proved to be a good place to be put. It had been allocated a Russian national a few years earlier and so, formally at least, a New Zealander was going to be easier as some of the staff spoke English! Like the Russian, I was given a single room and Leo came to see me (with his young son) to decide what it was that I would need for immediate use. He went off to purchase additional pyjamas, toiletries and other things deemed essential as I was equipped only for the weekend. I was looked after by a nurse that spoke good English, Lillian Ollimans by name, and allocated to cardiologist Dr Bredero; he had trained at Oxford University and spoke excellent English with a decided Oxford accent. My medication regime was adjusted with the addition of lisinopril. It is an ACE inhibitor (angiotensin-converting-enzyme), the third inhibitor to be introduced in the early 1990s. It has several beneficial properties over its predecessors. It is administered



for hypertension (high blood pressure; mine was 150/95 on arrival in Zeist), congestive heart failure and to improve survival after a heart attack. The one problem I had with medications was the 150 mg dose of aspirin prescribed in NZ; the Dutch wanted to reduce it to 100 mg a day as is now prescribed here but the NZ regime won that day.



Diakonessenhuis Zeist

Of course, none of the events in the 24 hours from the Thursday night passed without Margaret being told. My telephone call was not easy and, given the news, she was all for coming to Zeist immediately. However, sense prevailed and I had the New Zealand medical doctor assigned to me by the emergency assist contact her and put everything in better

perspective than I could. If nothing else, my experience was proving to illustrate the absolute necessity of medical cover for overseas travel. Margaret was told that, while my condition was serious, I was stable and beginning to mobilise again. With adjusted medication levels and the lisinopril I was soon walking the hospital corridors and stairs, but Dr Bredero would not discharge me without an angiogram being performed. Dr Tiller, my medical assist man, telephoned regularly and had me call him as needed, very much a benefit of having the insurance. He also contacted Phil Matsis at Wakefield Hospital. And so I could leave all of the Nitti Gritti details to others with no fear of cost ..... or so I thought!

Once again, the compact nature of Holland came into play. In 2002, angiography was performed in a limited number of hospitals and cardiac surgery in only two of them. There was a waiting list for angiograms and mine was not done until June 24. Over the 10 day period from admission to then, Leo, his wife and his children came to see me almost every day and proved to be especially caring and considerate. My colleague from Mainz packed my clothes and brought them when he visited with his wife, and my very close friend and colleague in Essen, Roland Boese, visited frequently. My host from

Nijmegen and his wife (they had stayed with us in Wellington the previous year) came and offered post-discharge accommodation in their home so as to recover. Bredero and the hospital administration kept my NZ medical insurers informed of my status.

Hospital life in a foreign country did not prove easy. While Lillian did all she could to make my stay a happy one, there were limitations, not least that in ordering my daily food. As happens here, the staff who service the food delivery are poorly paid and have average education at best. So it was that each morning I was given the menu for the following day written in Dutch. It had little or no meaning to me. Initially, I kept a record of what I ordered, what I got, and my comments on it. It was the only way I could begin to recognise the various items. The bizarre nature of this guessing game came home one day when I ordered for dinner something I had not seen listed before. It proved to be an almost tasteless thin mash for those who could not take solids!

By Saturday June 22, I knew that Margaret was coming. The insurers had agreed to meet her additional costs for travel to and from The Netherlands (we had planned for her to join me in London after my stint in Mainz where she would meet the new member of the family). Early on that Monday morning I was transferred to the nearest interventional heart centre (on the other side of Utrecht) where the angiogram was performed. After I was returned to the day patient ward Margaret turned up, direct from Schiphol airport via Diakonessenhuis Zeist. Her flight via Hong Kong had arrived early that morning and she was collected by Leo but they just missed me in Zeist. Apparently my ambulance drove out as they drove into the hospital. The staff on my day ward were excellent as they allowed her to shower, gave her some food and put her in the ambulance back to Zeist with me. But where would she stay? I could do nothing in the way of finding her a hotel and she had not even seen the town centre or where the hospital was relative to it. Fortunately, when Leo arrived he immediately took charge. For that Monday night he insisted that a bed be put in my room for Margaret. Lillian assisted and, when it was realised that this is what had happened with the Russian, all was settled. The next day, Leo set Margaret up to find a hotel close to the hospital, which she did; it had a typical very steep Dutch stairway, which proved a problem when she tried to take her suitcase up to the room. Unfortunately, and only after return to NZ did Margaret see her GP to have a small stroke diagnosed and attributed to her journey to me. Fortunately, it was not serious and she has had no recurrence.

With the outcome of the angiogram to hand, Dr Bredero relayed the find-

ings. There was a new blockage and he and his colleagues did not recommend opening it with angioplasty rather than waiting to see if further angina developed, at which time they would perform a redo CABG operation. Given this information the essential question had to be:

“When can I go home?”

The answer was not simple. Firstly, a long flight from Holland at that time was regarded as about six hours – Amsterdam to New York. New Zealand was some 26 hours distant with an aircraft change in either Los Angeles or Singapore. So I got from Bredero:

“No, you can’t go home even with a medical companion. Only after being monitored out of hospital while taking the prescribed medications can a decision be made.”

And then “You can’t go to Nijmegen either. It’s too far away from this hospital where you must return if you have to”; the distance is about 80 km.

Another problem! All the town hotels were of typical design with steep stairs. The only places acceptable were the elegant international accommodations just outside the town. Together with the insurance company, we agreed on a hotel called the “Oud London” set in a small forest just outside the town boundary and served by a town bus.

Prior to discharge I tried to find out when the hospital would send its various accounts for payment. There was no clear answer but a suggestion that I might need to settle everything before I left. More anxiety! I had no idea of my credit card balance, but I knew that it couldn’t possibly meet the total costs involved. My insurance company was clear in that it wanted the accounts sent to them – but which ones, all? Roland in Essen came to my rescue by offering to settle any accounts that might exceed my credit limit on the assumption I would reimburse him after I got home. I was not discharged until Friday June 28 by which time my son, his wife and daughter arrived in Zeist from London to visit. They had a hotel in the town and bussed to the ‘Oud London’ during their two day stay. This was their first visit to Holland and they arrived with especially useful information on the taxi-train transport system. Arriving or departing from a small town such as Zeist allowed train passengers to use taxis at a discounted rate. This was especially useful when Margaret left for London the following weekend as the taxis linked with the trains.

Before I left the hospital, Dr Tiller had told me that he would be flying to Amsterdam to join me in Zeist before he brought me home. However, he needed



The author on discharge from Diakonessenhuis Zeist, 28 June 2002

various documents to be completed to satisfy Singapore Airlines and Air New Zealand that I was fit enough to travel. The need for in-flight oxygen was a part of this. Although Tiller had spoken directly with Bredero and had been advised who would be attending to the matter, the requisite forms had not been completed by the time I

was discharged. I was asked to return the following Monday to collect them. By then I was feeling stronger but when I returned to Diakonessenhuis Zeist I found that the completed forms had not been signed; I had to go back again later in the day, collect them and send them back to NZ by facsimile. Unlike its medical staff, the hospital administrators were decidedly bureaucratic and I was directed to the town library where there was a public fax facility. I was still getting some angina on exercise, admittedly less each day, but the added stress did not help matters! On the following Thursday morning I had a final check by Bredero. He declared me able to return to NZ and he gave me a video of the angiogram to take home for Phil Matsis.

During that week, Margaret and I took the bus into the town to do what sight-seeing we could, including the splendid little palace, Slot Zeist. We would take lunch and even dinner there to minimise the hotel expenses. My friend from Essen visited and came again after Margaret left for London to spend the weekend with our family before she returned to NZ via the US. Her flights were set to have her back in Wellington some hours before Dr Tiller delivered me home. I was set for flights via Singapore (where the daytime stopover was to be spent in a hotel) leaving Zeist about noon on Monday, July 8. Before Margaret left, we had Leo and his family join us so that we could express our gratitude for all that they had done. I am eternally indebted to them and I am sure that they had to be relieved when I was returned to New Zealand.

Dr Stuart Tiller checked in to the 'Oud London' on Saturday July 6, immediately came to let me know of his arrival, did a quick medical check, and then left to spend the day with friends in northern France. The next morning he

conducted a thorough examination, declared me fit for travel, and left me to myself, but only after telling me that he would settle my hotel account and submit it with his own expenses claim. After attending a church service, I spent that last day revisiting Slot Zeist as it was the day of the country fair. It provided an ideal distraction from another day alone. One of the stalls sold sculptures and a futuristic piece in a bronze-like polymer was simply too attractive to leave; it continues to remind me of my hospital time in the town. Roland came and we had dinner together.

The journey home was quite normal save for having to use a wheelchair in the airports and be on oxygen during each flight. Stuart Tiller proved an excellent travelling companion. Business Class in both Singapore Airlines and Air New Zealand made the flights more manageable and the wines for one on normal oxygen proved excellent! Our passage through the formalities in Singapore was interesting. We entered immigration control and our passports were passed sequentially to the first of the compliance officers, at which time we moved rapidly bypassing all the lines and through a separate door to emerge to collect our passports and luggage. How anyone ever knew that it was me in the wheelchair has always remained a mystery. Then, after checking in for Auckland, we ran into one of my late 1970s PhD students in the airline lounge. I am not too sure who got the biggest surprise, him in seeing me being wheeled in, or me seeing someone I knew well! Once in Wellington, the angiogram tape was left at Wakefield Hospital and I was delivered to a nice warm home at about noon. Margaret had arrived at about 9.00 am that morning and had the house nicely warmed.

## ***Redo Bypass Surgery***

After settling to the cooler winter weather of Wellington, I was assessed by Phil Matsis. He had studied the Dutch angiogram tape and concluded that they had missed the vein graft to my posterior descending artery. He recommended that the angiography be completed at Wakefield. It was, in early August, and it showed the vessel to be healthy. However, the vein graft to the circumflex that had been stented in 2000 was occluded as the Dutch had found, but Dr Matsis felt that he could open the blockage. This he did and put in another stent, my third. I was reviewed at the end of August by which time my angina was predictable and provoked by moderate exertion. Medications remained as those prescribed in Zeist.

By late September matters had deteriorated and I awoke early on the 23<sup>rd</sup> with significant chest pain. Admission to Wellington Hospital confirmed a

small infarct (in the scale of things) heart attack and it was followed by my third angiogram in as many months. It showed that the new stent had survived only a few weeks before becoming occluded. The consensus was for the earlier recommendation from Holland, namely a redo CABG.

At that point in time the waiting list for coronary surgery was close to seven months. Because I had medical insurance that would cover some 60% of the surgical and hospital costs, we decided to go private and have the job done at Wakefield. The wait was two months. The surgeon who performed my second bypass was Mr John Riordan. It was he who had been the assistant to Bede Squire back in 1983 and removed my leg vein for recycling. He met us and explained (again) the procedures, but updated us on the actual operation and the subsequent recovery programme. Sometimes bypasses can be inserted 'off pump' without shutting the heart down. I was redone this way the day after admission on November 27, 2002. Whereas in the public hospital one does not meet one's anaesthetist, Wakefield allocated me to Dr Wojner. He saw me before surgery and took complete control of the anaesthesia process from pre- to post-operative recovery. He was excellent. Interestingly for me was the fact that his daughter was about to finish her BSc degree in chemistry. She was aware that I was in the hospital and, very generously, sent flowers to cheer me up. This seemed to cause some confusion among the hospital administrators. Surely a daughter would only send flowers to her father who worked in the hospital! So it took a while before the bunch traversed the premises and (ultimately) arrived in my room.

My surgery was performed in the morning and I regained consciousness during the afternoon. I recall being urged to breathe on my own so as to rid me of the ventilator. Once off it, I rested for what seemed like no time at all and was then got out of bed to stand and walk on the spot, but I am told that this was the following day before I returned to my room. It was dramatically different from 1983.

The part of me to be recycled for this surgery was my left radial artery; my left mammary artery was used internally. The advantage of using the mammary artery is that it is known to block subsequently much less often than a vein graft. A disadvantage of a redo job on the pump is that memory loss can impact and my off pump redo job has perhaps minimised my memory loss as the years pass. In any event, the second surgery admitted me to the 'double zipper club'; the opening of my chest for the second time was very skilfully performed – it followed precisely the line of the first. The big bone at the top of my chest now is completely out of shape and less obvious even than after



the 1983 operation. By 2002 traditional chest closure used metal ties that are detected by X-ray but not by airport metal detectors and so I am now 'wired-up'.

As always after such major surgery, care must be exercised and the rolled up towel again came to the fore. Physiotherapy exercises were daily and walking started immediately. I regained strength quickly and was walking the length of the corridor several times within three days. On the fourth day, custom had it that the flight of stairs to the third level was added in to check uphill travel. My fourth day was December 2, the day before discharge. I was escorted up the stairs by my nurse and half way up I commented on the delightful Christmas tree on the next level; I had been up there unofficially the day before! This was not as inappropriate as you might think as one patient had been up and down the fire escape before discharge several years earlier!

We had moved house in 1994 and now lived on the flat valley floor of Karori. Once back, it was a matter of keeping to routine physiotherapy exercises, regular walking and gaining strength, all of which were easier to do and the recovery period was much shorter than in 1983. During the first weeks I had a US colleague visit and my time at home was nice and relaxed for us, but it was not as I would have wanted it given a choice. I did not return to the office until after the summer break. By that time the post-operative medications had run their course with all but the aspirin and statin removed from daily dosage. However, the need for them soon became apparent and Phil Matsis reinstated a small dose of nitrate because the circumflex territory had not been able to be grafted due to the small size of my vessels. It solved my problems.

Wakefield hospital ran its own coronary care programmes and I attended one early in 2003. Much of it reiterated what I had picked up in 2000, but there was advantage in being reminded to remember. There was one thing that has stayed with me and that was Dr Malcolm Abernethy discussing the quantity of alcohol that a heart patient should strive to limit intake to. Back then red wine was regarded as most beneficial in small quantity – but the wine glass Abernethy produced was smaller than anything I had seen before. On reflection I suspect that it was a 100 mL standard drink size but smaller than any wine glass I owned then or since.

Despite the coronary event in Holland and the redo surgery, the insurance company used by Victoria University was willing to re-insure me to attend a Pacifichem 2005 Organising Committee meeting in Tokyo in May 2003. Not surprisingly, they would do this only on the condition that I would accept a higher excess for any heart complaint while overseas. Although I was rep-

resenting New Zealand and my own institution, Victoria University refused to accept the increased excess and I covered that myself. I had no medical problem.

The meeting took place at the Chemical Society of Japan in the suburb of Ochanomizu as it had ever since I joined the organisation in 1989. Our Japanese hosts always went to great lengths to ensure that we were well looked after and this meeting was followed by a weekend near Mount Fuji. It proved a very enjoyable time and the last that I had with the group.

## **Another Reassessment, Exercise Angina, Hospital for New Year's Eve, and then Stent 5**

The months of May to September of 2003 continued to go well save for early onset angina that was put down to the circumflex part of my heart. What I found was that after about seven minutes of walking (uphill to start with) I got some central chest pain. This was mild and never severe, and it was dissipated either by using the nitrolingual spray or simply, slowing and continuing to walk. It was put down to the numerous capillaries that had developed being somewhat slow to open. It became a regular part of my daily walk to the office and was inconsequential. However, with all of the changes taking place in the New Zealand academic environment, the demand for increased accountability and the inevitable explosion of the paper war, the thoughts of how much longer I should continue working came into my mind more and more frequently.

By October of 2003, the need for a closer examination of my cardiac performance was needed and I underwent an exercise test at Wakefield Hospital. Whereas I completed all stages after the 1983 surgery, my ability to perform here was quite limited. I made it only to the end of Stage 1, some three minutes into the full fifteen minute programme; the early onset angina manifested itself. Medications were adjusted and the beta-blocker reinstated. The calcium channel blocker, diltiazem that I had been given in 2000 (an updated version of that used in 1983) was also restarted. Thoughts of retirement became even stronger. Although I was only 62 years of age, my health had taken more of a battering than happens for many far older. I came to the conclusion that if I could retire from formal teaching and research but continue with an



office and do those things that really excited me, then it was probably the right time. Nonetheless, it took a long time to compose an appropriate resignation letter to the University Vice-Chancellor, and even longer to actually put it in the mail. I did it only having established that I could continue with an office if one was available. My retirement date was set for March 31, 2004, a few weeks after my 63<sup>rd</sup> birthday.

With the medication regime altered after the check, things looked up for a while but then began to deteriorate in terms of the early angina. By Christmas Day 2003, I was not feeling too good and on Boxing Day I forwent a day at the cricket with family. However, by the following Monday a walk up a slight slope caused major problems and I went to see my GP. After a brief examination he suggested a holiday in hospital, called for an ambulance and I was back to Wellington Hospital. There it was shown that I had had another small heart attack and I was admitted from the Emergency Department to Coronary Care. The various assessments concluded that another angiogram was needed and this was carried out by Dr Mark Simmonds, formerly an Easthope registrar and now an interventional cardiologist. He showed that my vein graft to the posterior descending artery and additionally the radial heart artery had blocked. These were opened with the usual angioplasty process and stents numbers 4 and 5 implanted. That was done on New Year's Eve and I went home the following day, but this time with a recently available antiplatelet medication, clopidogrel. Whilst its administration in many countries ran to a lengthy period following stent implantation, it was new to New Zealand and employed only for two days.

Following that event, my angina was much reduced and life returned to normal for almost four months. You will recall that stents are known to block and that statistically 1 in 5 do. Well, New Year's Eve had seen number 5 put in and it decided to play up. Now I do not know which of the actual stents deployed on December 31 was the fourth and which the fifth, but if one was to play up then it might as well be number 5!

When I retired that March I took almost four weeks off and then returned to the same office to reassess how best I would spend my time. The editorial work I had been doing would certainly continue but the idea of returning to work in a laboratory as I had hoped for earlier was dashed because of the expense of chemicals, solvents and the services I would need. Thus, the decision was made to transform from a 'real' chemist to a paper one, though just how flammable I have become is not for me to say.

That aside, I began to feel less well and very early on the morning of April 27

I was getting the more classical angina symptoms with pain in my chest and down my arms. My wife called an ambulance and I was taken to the hospital emergency department, given aspirin and morphine, and put on oxygen en route. I was, yet again, admitted to Coronary Care. This time I had managed to arrive without having had a heart attack! At about 9.30 am the then Medical Manager of the ward came to record another ECG. As the print out was appearing from the electrocardiogram machine, he told me that the output was changing – an evolving ECG; apparently I was having a heart attack and he asked how I felt. As far as I was concerned, there was nothing untoward. I had no personal discomfort or abnormal indicators. Nonetheless, the situation was sufficiently serious for me to be taken to the catheter lab as an emergency very quickly. As it happened, Mark Simmonds was the cardiologist performing angiography procedures that morning. He soon found the stent he had put in the vein graft on New Year's Eve had blocked. He opened the blockage and added another stent and began a course of clopidogrel, the antiplatelet agent.

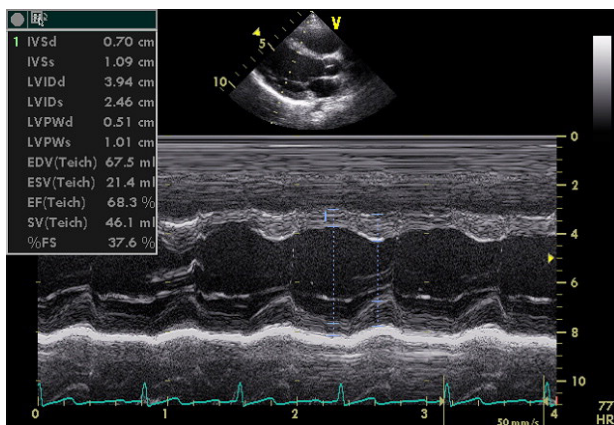
Just four months after first being prescribed this drug for two days, it was now available for one month. However, I was recommended to take it for three-months. The drug was not funded by Pharmac except for the shorter period. An application was made to for a special supply but it was declined. By comparison, Canadian patients were, at that time, automatically prescribed for six months. The hospital provided me the month's supply and, being in a position to do so, I purchased the other two months myself. The outcome of all this was that I was back to my normal life remarkably soon and walking to the office again. As an aside, it is noteworthy that the then Medical Director of Pharmac, Dr Moody, had been my own GP until he took on that role. It was to him my case had been directed and then again in the subsequent successful arguments for extending the period that it should be available to patients.

# More Good Years, a Pacemaker and then Better Years

## *More Good Years*

Following the opening of stent number five, my life ran on a fairly even keel. The morning exercise angina remained but, other than that and on a cold, windy winter's day, I was angina free. I managed to progress writing up some research studies and also I taught some of the classes as the university did not make a decision on my replacement until mid-year. I soon completed the transformation to full time office work, whilst being able to help any graduate student that wanted assistance and proffer advice in the laboratories to the undergraduates on experimental procedures and techniques. It is a role that has suited me and I still do from time to time. Ever since I was a postgraduate student in the UK I had been fascinated by golf, but I only played there and in Florida; I never had the time here in Wellington. Given the status of my heart and the distance of the nearest golf club from home (and the hospital) I settled for lawn bowls as a retirement sport; the green is a mere 100 metres from us! This began with an introduction in October, thorough enjoyment with the game and the club members and what has become a major retirement interest. Although I am no brilliant player also I am no mug and I have represented the Karori Bowling Club in its Pennants endeavours (a mid-week interclub competition). Within a year of joining I was on the Executive Committee and served as Club President for two contiguous terms from 2010.

The years passed happily and, as a senior member of the University, from time to time my views were sought especially when it came to historical issues. And so the years from late-2004 passed enjoyably. In 2005 I became grandfather to Samuel; Mark and Debra's second child. I had one medication change in 2005 and that was to include a daily diuretic (furosemide). Then I began to get the occasional dizzy spell in late 2006 and a new regime, that of an almost annual echocardiogram was set (this is not ECG rather than cardiac echo or simply echo; it is a sonogram of the heart using Doppler ultrasound). It is a simple, non-invasive test that takes about 30 minutes with me lying on my left side while the cardiac technician manipulates the ultrasound head around the heart area. It is akin to the ultrasound that a mother-to-be has taken on her foetus. The wealth of information from the cardiac echo includes the size and shape of the heart, its pumping capacity, and the location and extent of any



Echocardiogram in the parasternal long-axis view, showing a measurement of the heart's left ventricle

tissue damage. It also provides the physician with other estimates of heart function such as a calculation of the cardiac output, how well the heart is pumping out blood to diagnose and track congestive heart failure (CHF) (ejection fraction), and how well the heart relaxes (diastolic function). An occasional drop in my heart rate was thought likely,

but there was nothing untoward in a 24 hour Holter monitoring of my heart's electrical performance.

Following my retirement and coping with the teaching work of 2004, it became very difficult for me to obtain travel insurance. However, with Australia offering a reciprocal cover to NZ residents, we began to take holidays there. One of the first of these was a 15 day visit to Western Australia to see the wildflowers in late September 2006 after Margaret had also retired, and since then winter holidays on the Sunshine Coast of Queensland or further north in the Cairns area have become semi-regular events for us. I must admit that as the years pass, an escape from the worst of Wellington's winter takes on a more and more attractive tinge.

## ***A Pacemaker***

My health continued on an even keel until 2007, September 1 to be precise. As it was springtime, there was a need to clean up our small garden. A three metre high tree had had a branch broken on the City Council side of our boundary. I climbed the tree, sawed the branch off from a height of about two metres, but recalled being a bit vague in doing this. I pushed the branch away, dropped the saw to the ground in our garden and remember nothing more until I regained consciousness in complete blackness. I vividly remember thinking:

"Am I dead?"

“Can I can move something, if so I must be alive”.

I tried to move but could not. Then I tried a little finger and it moved. So I was not dead – but where was I? Next, I recall being on my hand and knees in the garden, which was where Margaret found me. I must have lost consciousness for a time but for how long no one knows. I was manoeuvred to a stool, an ambulance was called and it was back to Wellington Hospital.

Fortunately, I recovered fairly quickly from slight loss of memory, but the broken ribs (assumed, but not shown by X-ray because of the metal chest ties – see illustration p. 18) were another matter. Initially, staff in the Emergency Department thought the cause of my fall was a stroke, but this was discounted by the cardiologist and linked to an evolving drop in heart rate (bradycardia). Subsequent Holter monitoring failed to detect a further episode, but then, once off the monitor, I did suffer a series of blackouts, e.g. coming to in the office with my head on my computer keyboard – and lots of added key strokes to whatever document I was working on! I graduated to a seven-day event monitoring that also failed to capture an episode but after handing it back to the hospital in the morning I had an event that afternoon. It was clear that a Pacemaker was to become a part of me sooner rather than later.

The final straw was in mid-November. On taking the rubbish and recycling out on a Tuesday evening I blacked out. I came to on the ground with much blood on the driveway. I had placed the cardboard recycling vertically in the bin and it took the skin off the left side of my face in the collapse. I was back in the house in no time and driven to the Medical Centre. I was seen immediately and taken to A&E by ambulance.

Readmission to Coronary Care was followed by three more short events that night (10-30 seconds a time as monitored). The following morning I was told that a Pacemaker implant was definite and that I could not go home before that happened: I was a danger not only to myself but to everyone around me! The room I was in faced the back of Government House and, with little better to occupy my time, it seemed appropriate to rename it ‘The Governor’s Suite’. After six days I went down to the catheter lab and the Pacemaker was implanted by Dr Scott Harding who, together with Phil Matsis did such jobs. This procedure is another done under a local anaesthetic given prior to an incision being made in the upper chest/rib area. As I am right-handed this was on my left hand side. Two wires were fed through my veins/capillaries and located in the correct part of my heart (the right atrium and ventricle). Normally, these and angiogram procedures take place with lots of banter going on, but I was able to tell that Harding was finding my heart difficult to work

with. At one point you could have heard a pin drop. Perhaps my sensitivity to the movement of the wire had something to do with it as I could tell just how far each painless movement made. In any event, the normal 45 minute procedure took more than 75 minutes to complete, at which time I was offered a normal or superior set of stitches to close the wound. Of course I elected for the superior and the site of that incision is now barely visible. After return to the ward the Pacemaker was found to be doing all the things it should. The grandchildren were impressed. I now had a computer helping my heart work and three year old Samuel christened me robot granddad.

Pacemakers can be of three types: a single lead model that is connected to the right atrium or ventricle, a dual lead one connected to both, and a three lead model that is attached to both the left and right ventricles as well as the right atrium (see page 47). I was implanted with a dual lead unit. One further aspect of the implantation is noteworthy, and that is that the model of Pacemaker was a new one and the technician from the manufacturer was in attendance during my procedure. For many years I was heavily involved with the Victoria University Nuclear Magnetic Resonance (NMR) spectrometer. It is a more scientifically oriented version of the MRI scanners in hospitals and operates under a powerful magnetic field. I was more than aware that my days of operating such an instrument had passed but I had to enquire what would happen if the Pacemaker got into such a magnetic field. The response was simple but droll. The Pacemaker would survive and return to its normal mode of operation when out of the field. What would happen to me was anyone's guess!

I was discharged the following day on my pre-admission medications and very soon back to driving. A follow-up consultation with Matsis in December resulted in my beta-blocker dosage being halved and diltiazem and the Cardizem that was introduced after the September episode, reinstated. I was back on the medication before the tree episode. In mid-2008 the nitrate level was increased by a half (to 90 mg daily) and has remained at this since.

## ***Better Years***

My younger son Paul announced his engagement to Sandra, now his wife, in 2008 with a wedding planned for October the following year. Following my visit to Japan in May of 2003, I had not travelled beyond Australia as that country has a reciprocal medical agreement with New Zealand. Would I be able to go to Germany in 2009 with any form of medical insurance covering me? I was aware that no insurance company would cover me except with a

significantly increased excess on the policy. Eventually, Mike Henry (now AEG) offered this with a significantly increased premium and excess, but a manageable one. To get that cover involved providing copies of every assessment/discharge summary following the redo CABG together with a support letter from Matsis as 'able to travel internationally'. So, in early September 2009, Margaret and I spent a little more than a week in the UK where we visited members of my father's side of the family for the last time. We then flew from Manchester to Stuttgart to meet Paul and his about-to-be family in the delightful village of Weissach im Tal, some 35 km north-east of the city and close to Winnenden where the children were living.

We rented the upstairs level of a home as accommodation and, because Paul and his fiancée Sandra were working during the week, we took mid-week visits to visit various parts of Germany and Austria. With Margaret, I returned to Essen driving down the Rhine valley for the first time rather than being on a train; I even delivered a lecture in the University of Essen. It was good to meet Roland and his wife for what was probably the last time. The wedding took place in the Winnenden Castle Church with its beautifully carved St Jacob altar. The ceremony accommodated the foreign visitors (Mark and his family were also there, as well as New Zealand and Australian friends). Paul's parents-in-law run a tour company and, by using the smaller of their coaches, transport to the reception, an overnight stay at a centre in the nearby countryside, was easily achieved. It was a delightful day and we were so pleased that I had been able to attend. The entire five week trip was incident free.

In mid-2010 Pharmac changed their supplier of simvastatin and within a few months I developed white lesions in my mouth. The hospital dentist diagnosed leukoplakia and ascribed it to the changed manufacture (same drug different fillers). It remained in check until January 2015 when I reverted to atorvastatin (an equivalent) and that saw it go within a few months! Also in 2010, I was declared as mildly over-medicated. The nitrate and beta-blocker doses were reduced and I felt pretty stable. That was until April of 2013 when Phil Matsis recommended adding a blood-thinning drug. The Pacemaker checks had shown some abnormal heart beats (atrial fibrillation) and a blood thinner would minimise the chance of a stroke. Margaret was very concerned that this not be back to the warfarin I had had in 1983. Although routinely used today, alternatives are available and I was asked to consider dabigatran (Pradaxa in NZ) as my antiplatelet medication. Discussion with Phil and my acting GP persuaded me that it was a logical addition. So, I started taking Pradaxa in early May that year. An amazing feature of the medications is that most can be taken together without interference, something that surprises

me as a chemist.

Some six weeks later, Margaret returned to Weissach im Tal to visit the family, which by then included grandchild number three, granddaughter Carla. By that time and after the Christchurch earthquakes, I had given up the possibility of being insured, as when I asked I was simply turned down. I am unwilling to risk another hospitalisation like that in Holland at my expense; we simply cannot afford it. As I have said, winter in Wellington was taking on even less appeal. So, I travelled to Darwin, saw the sights there including the Kakadu National Park and the Katherine Gorge, flew to Broome and then had a two-week coach tour down the Western Coast of Australia. I elected not to travel into the more remote Kimberly but maybe I could have. I had no health issues other than a mild pneumonia in Darwin that was settled by a single antibiotic injection. The tour and the wildflowers were simply stunning.

With that part of Australia ticked-off so to speak, things looked good. After a couple of months at home my breathlessness increased and I needed to pause a few times on my walk to the office. Phil Matsis juggled my medications to provide some relief. Then, in late 2013, I discovered an anal lump. My GP referred me to a specialist.

## **Congestive Heart Failure**

I did not get an appointment to see the specialist general surgeon until February of 2014. My lump was a tumour and probably a skin cancer that needed to be removed. That happened early in March and it was a small squamous carcinoma. Should I have been worried? Well, no! Not with a five-year life expectancy pronounced in 1983 that had run more than six times its course. What could there be to be concerned about. None of us are indestructible (though we might not always like to think so). All forms of cancer are treated with the big 'C', but having lived with serious heart disease for more than 30 years, the prospect of a short(er) life, did not worry me. I think I have been close to death more times than seems reasonable! So, the anal tumour and associated area was removed completely and the cancer is gone; the chance of a return is classified as low.

To have that surgery, my blood thinner Pradaxa had to be stopped because the operation was performed under general anaesthetic. No problem there, but within a week my heart symptoms had taken off and I became very wheezy,



short of breath and unable to walk any distance. My furosemide dose was doubled but matters did not improve and during the evening of March 10, a day after my 73<sup>rd</sup> birthday, I had another journey to Wellington Hospital by ambulance. This time it was with a driver new to our area of the city. We took a couple of detours and Margaret, who had stayed at home to pack a small bag for me, arrived at the hospital only to find that no one there knew about me. My ambulance had come from Johnsonville and we retraced steps to the Thorndon motorway then detoured, exiting at The Terrace to arrive at the ED some minutes after her. It is the only time that I have had any concern with our ambulance service. But I had to laugh as the man monitoring me lived one street away and knew the area. As I was in no imminent danger, he felt that he could not offer advice to his new to the area colleague. Admission was as normal but to Ward 6 South, the new (for me) coronary care area. Heart attack number seven was diagnosed, another small one, but I was now suffering from heart failure. I had detected (and reported) much more shortness of breath when walking but had persisted with my 40 minute exercise to the office. In any event, the new infarct was treated with angioplasty and stent number seven went in. But this was not before Prof Alex Sasse, the Director of Cardiac Imaging at Wellington Hospital who specialises in invasive and non-invasive heart imaging, had photographed my heart very extensively. He asked if one of his students could attend the angiogram session and I was more than happy for this, after all she would be unlikely to get the opportunity to see a heart as messed about as mine for a very long time. What astonished me was that Sasse is a non-invasive cardiologist to the extent that after he had decided that a new stent was in order, he had to get another man to do the implantation; it was Scott Harding who had inserted my Pacemaker in 2007.

Return home was on March 18 with driving stopped for only two weeks, the new norm, and recovery from the heart attack (again small in the scale of things) was quite quick. There were a few medication changes, the most significant being the addition of clopidogrel, not for a month as in 2004, but for one year. The medication regime with Pharmac had advanced markedly. I took a couple of weeks off from the office to recover.

Most notable was a new follow-up, this time by a coronary nurse who told us about CHF, its symptoms and the best way to cope with it. It was not something that was going to go away. However, CHF is not the devil its name implies. It simply describes a heart that can no longer pump with good efficiency and needs to be better cared for. It tends to lead to an increase in fluid reten-

tion and my furosemide is now critical. Tiredness manifests itself and activity drops a bit. Meals should be smaller and more often as digestion uses lot of energy – easier said than done. Salt had to be minimised and many alternatives to it were listed for us to try. Margaret modified all of our meals to incorporate these ideas. Breathlessness was important to note – but I had had that for a long time. Puffy ankles are a sign of water retention – but mine never have been much enlarged and never caused Matsis any concerns. So, from the day she advised us, whenever we eat out now not only do we have sauce on the side but also no added salt. And it works.

The second most important matter was to restrict fluid intake to no more than 2 litres per day. Now I have never drunk pints of beer in an evening since I was in my 20s, but, even so, the limit seemed low. When we sat down and thought it through it didn't seem that bad. Breakfast, lunch and dinner, morning and afternoon tea and a drink during the evening (six in total) took 1200 mL using a fair sized 200 mL cup and 1350 mL with a 250 mL one. That left volume for a beer and maybe a glass of wine with space left over. And so a different regime became established.

Given the two surgeries within 10 days and no summer holiday, I felt the need for some warmth even though it was only March. So, in early June we spent two weeks in Caloundra on the southern end of the Sunshine Coast. When we got home it felt cold, too cold, and so within a couple of weeks we had arranged for a second holiday. This was at Trinity Beach north of Cairns in August and that too, gave much appreciated time in the warmth.

As the New Zealand winter advanced to spring, my walking to the office remained a daily effort, but it began to cause a bit more breathlessness with the need to pause more frequent. Then, in mid-November, I developed symptoms that were unlike those I knew – general abdominal discomfort, increased breathlessness and the like. My own GP was trying to climb mountains in Nepal (it was shortly after the major Nepalese snowstorm disaster when climbing was not allowed) but I was assessed in emergency at our Medical Centre. A heart attack was regarded as remote and I returned to my norm shortly afterwards. However, I had a routine check-up by Phil Matsis in early December and he felt that the earlier event had to have been coronary of some sort. His concerns led to an increase in the nitrate tablets to 120 mg a day and another angiogram was set for one week ahead of Christmas. Phil found that the radial bypass graft had a severe restriction (narrowing) and that was opened with another stent, this time before an infarct. I went home next day.

The clopidogrel was extended to December in 2015 but the nitrate kept at the 120 mg level.

On December 23, I was set to collect new prescription glasses following a second cataract surgery for which I had elected to retain spectacles; I had worn them since a six or seven year old child and I didn't feel able to be rid of such a long standing attachment. To get to the opticians' I elected to take the bus to the Wellington Botanical Gardens and walk into town. However, a shortness of breath caught me after about 500 metres and so I got the bus from the main gate, collected the glasses and waited for a bus home. I began to feel worse, but not that bad. So I got the bus only to deteriorate. I sent Margaret a text message asking her to meet the bus with the car. This she did and from there it was straight home, a 111 call and admission to coronary care on Ward 6 south again as in March. Blood tests confirmed another heart attack (number eight) and I was appropriately medicated.

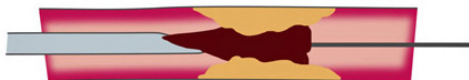
That night I was unable to settle, tossing and turning and feeling generally unwell and uncomfortable. I tried the bed flat, and then up, got up, walked on the spot, laid down again. So it went on until, with the bed up, I dozed off. When I awoke I knew something was wrong. I was lying flat and the room was full of people, one of whom hit my left shoulder hard. After what seem a very short time I was told that I had gone into VF (ventricular fibrillation) where my heart quivered rather than pumped and made me unconscious. It is often termed a cardiac arrest but this is not strictly correct. Frequently it is fatal and it would have been had I been at home, in the office or most other places. Apparently my room companion (an elderly man) had been terrified: alarms had rung, lights flashed and people came running in. Subsequently, I was told that my night nurse was first on the scene. She began CPR before the crash team arrived. They gave me one shock that was followed by more CPR. And that revived me – and I am still here to tell the tale. After a short time I was moved to a room on my own. The time between being off the ward monitor during transfer had to be minimised. I had been asked if I felt sick, which I did not. But that rapid transfer swinging around corners got to me. I was told to put my head over the side of the bed and, no sooner done, there was a "Watch out!" I got my head in just in time to avoid contact at the next corner. Sometime later, after I had returned to the land of the living more fully, I was asked if my wife should be told. It was about 7 am on Christmas Eve and I knew she would still be sleeping so I suggested that it could be later.

As the severity of the situation had not really hit home, the staff phoned Mar-

garet anyway. She was in my room well within the hour. Apparently I looked very grey, ghastly and close to death. Mark and his family arrived shortly after. They left feeling that they should be organising a funeral and not Christmas – but that I only learned of much later. By 8.30 the ward round was underway and Mark Simmonds entered my room addressed me as Mr ..., looked up, realised I was not that person and said “But its Brian isn’t it”. The staff had not had the time to change the name by the door. Once my notes were produced and digested, I was told that another angiogram was needed and that the man in the lab that day was Dr Matsis. What a coincidence, two of the three people to whom I had dedicated a paper on Alfred Nobel were on duty. The angiogram (number nine) was performed later that same morning. Phil saw me before the procedure and told me that my problem had to be caused by one of two things. The stent he had put in some five days earlier could have blocked

### Thrombectomy

#### Catheter aspiration thrombectomy



Blood clot is removed using suction

#### Mechanical thrombectomy



Blood clot is broken up into small pieces and removed

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(and he didn't believe that) or, more likely, the lead catheter had disturbed things causing a subsequent blockage. This is a known hazard of angiography and not medical misadventure. The procedure clearly showed Phil to be right. The radial graft had been blocked with extensive blood clots. I was lucky. Phil was able to get the lead wire

through the blockage and then used something new to me – the thrombaster – another catheter device inserted and directed to the blockage where it is pushed through the blockage, suction or spray applied and the clot(s) broken up into very tiny pieces that are sucked back down the catheter to an external filter. It worked! The vessel was stented twice more and a further stent inserted close to the Dec 18 insert. With these three stents as my cardiology Christmas present my total was up to eleven.

I was back in 6 South early in the afternoon and had to keep my leg straight again, but not the right one as, with an angioplasty a week earlier, the catheter was inserted into the left leg artery. It was Christmas Eve and staff had lots on

their minds. This to the extent that the pressure bulb closing my incision was removed too quickly, reapplied immediately but the bleed gave me the biggest bruise I have ever had. It was Christmas Eve and everything glowed when the Hospital Choir visited and sang carols. Even when they were way down on 6 north their voices rang through the corridor to provide a real Christmas feeling. What a pleasure it was to hear them. Christmas Day in hospital was a little different from the norm. Phil Matsis was the cardiologist with the short straw and on ward duty. He saw me, declared me suitably fixed and probably able to go home two days later. He made it home for his Christmas family lunch. Our plan had been for lunch out for the first time but my presence was cancelled on the 23<sup>rd</sup>. However, I insisted that Margaret, Mark and his family continue, which they did. For me, the lunch choice was some sort of pasta or lemon fish. The lemon fish really was rather nice but it paled into insignificance when I discovered that ham off the bone was on menu for regular salt intake folk!

Dinner was turkey, pasta and salad. Sadly, the salad had no dressing, the pasta unappetising and the turkey, a sliced roll that was too fatty. The evening was saved, however, as Margaret had brought me a few small home cooked turkey sandwich squares, some Christmas cake, a mince pie and a few scorched almonds. Mark had appeared with a rather nice bottle of wine but the staff would only let me open it if they could share it – I took it home!

## Life after VF (Cardiac Arrest)

My discharge from Wellington Hospital the day after Boxing Day was uneventful once my prescription was corrected and my furosemide reduced to one tablet a day from the two that Matsis had had me on prior to his first angiography. I was told to take it easy, not to do too much and to expect to need longer to recover from these events than the earlier ones. “Take your time for 2 to 3 months” I was told, and that proved to be correct.

I have yet to discover whether it was the heart attack or the cardiac arrest that hit me the hardest. Either way, everything I was doing in late 2014 took longer. I can no longer do the 40-minute walk to the office but I got the distance up to over 1 km. I tired more easily than before and my time at the office reduced a little. Playing bowls became a struggle to last a game but it got better as time passed.

So, I had a lazy time after getting home, but I was still getting angina quite easily and breathlessness became the norm. By Wellington Anniversary Weekend

I had deteriorated. The symptoms were much more akin to those I had had before my 1983 heart attack. I had severe stomach and abdominal pain, angina (if that is what it was) across my lower abdomen and not in my chest. For the first time in my life I felt as though I was about to die. Anniversary day arrived and the medical centre was closed. The afterhours centre would do little other than refer me to the hospital. What to do?

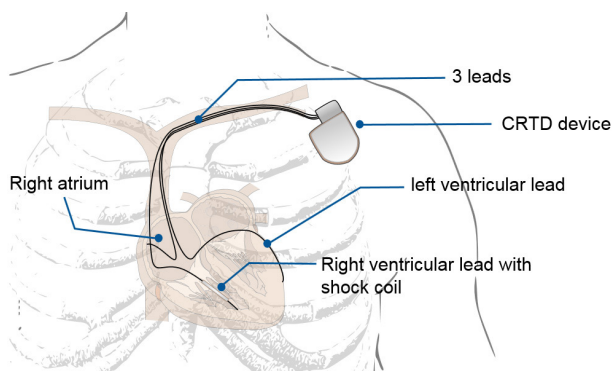
As things deteriorated I accepted the verbal advice that Phil Matsis had offered: "Call me at home if you need to". I did just that. He was sympathetic and responsive, and told me to take two more diuretic furosemide pills immediately and call back later. What a relief! Loss of fluid was quick and comforting and I was closer to the land of the living when I called him later. That night I felt much better than I had since I came home. Sadly, matters deteriorated through the next two days and I contacted Phil's assistant at Wakefield as requested. Soon after, he called me with the instruction to get back to Wellington Hospital to be dried out – not from alcohol, but fluid! So, in the late afternoon of January 21, I went back to hospital, this time to the short stay unit just for B&B. Intravenous furosemide worked and I was normal again the following morning. At discharge I was back on double my former diuretic dosage (to 80 mg per day) and on omeprazole to minimise gastric symptoms. Again, I was told to take it easy for a couple more months. But that was not all. I must now watch my weight and breathlessness – indicators of fluid retention – and that is simple enough. A set of bathroom scales and a pad for recording fluid intake have become a part of my luggage whenever I travel!

The most significant recommendation from that bed and breakfast visit was to reduce my fluid intake to 1500 mL per day. This has proved easier to say than do. Six drinks a day need to be a mix of 180, 200 and 240 mL sizes to allow for a 330 mL bottle of beer or some wine. On hot days it is a decided challenge. The need for the low salt diet was reinforced and all foods with high salt content have to be minimised. It was perhaps a good job that I had fish rather than ham on Christmas Day after all!

In checking foods, one noticeable thing is that a very large number of low salt products, while just that, contain a significantly increased potassium level. Potassium is as much an electrolyte as salt and high levels of it cannot help to minimise fluid retention. Given this, while not back to the drawing board, we are much more conscious of diet. We do like takeaway fish and chips and my dietary restrictions have not stopped us. But rather than battered fish, we have a grilled fillet with chips and no salt added to either – and they are better than before especially using balsamic vinegar as an additive to the chips.

Naturally, we had to re-examine the diet sheets and, much to my surprise, the Dominion Post offered one of the most sensible, logical and valid diet pages I have seen. This was written by Anna van Praagh and entitled: *Finally, the ultimate Guide on What to Eat*. It appeared in *The Dominion Post* on Saturday, February 21, 2015, page C2. Whenever we now eat out I always avoid ham, bacon, salami or any cured (preserved) meat and always have meals with no salt added and sauces or gravy on the side.

After some 32 years of living with serious heart disease I had my first programmed intervention planned – a replacement for my 2007 Pacemaker whose battery formerly ran out in mid-April 2015. These devices carry an added emergency life of some two to three months – one would not want to be in a natural disaster like the Christchurch earthquake without that. Although it is the battery that runs out, the complete unit must be replaced as these devices are hermetically sealed. Following an appointment with Dr Scott Harding at Wellington Hospital, I was advised that an *implantable cardioverter defibrillator* (ICD) for cardiac resynchronization therapy (CRT-D) would be best for me. This followed from my CHF and the VT episode at Christmas 2014. These devices, whilst behaving as a pacemaker, have the added capability of an inbuilt defibrillator that can quickly terminate an abnormal, life-threatening heart rhythm by delivering an electric shock to restore a normal heart beat. Moreover, CHF weakens the left ventricle and eventually leads to an electrical imbalance between the right and left sides of the heart (as well as an imbalance in the left ventricle itself). This leaves the left ventricle incapable of pumping enough blood and the symptoms of CHF worsen. A CRT-D device helps resynchronise the contractions of the ventricles thereby helping to pump blood more efficiently. To do this, a three-lead unit is needed with the additional



A 3-lead CRT-D device (from *Devices in Textbook of Cardiology.org*)

lead attached to the left ventricle to better balance left and right pumping. These devices are expensive and not everyone is suited to them so that only some of the deserving cases can have a CRT-D fitted.

Such implantation depends on having sufficient undamaged left



ventricle tissue and this is determined from an echocardiogram. My most recent one showed mine to be satisfactory. It was then necessary to establish that the veins around the heart were suitable for the new lead to be appropriately placed. This was achieved from a *venogram*, a remarkably simple procedure akin to an angiogram that follows the veins around the heart by X-radiography after injection of (20 mL) contrast dye to a vein on the same side of the heart that the unit will be. This showed my veins to be appropriate for the implantation of a new three lead device and this was done on June 30, 2015. A new right ventricular lead was inserted alongside that used for the old pacemaker as well. This carries the shock coils for defibrillation. Not only do I now have a new unit but I am set up with a remote monitoring device. It advises the manufacturer nightly what my CRT-D has been up to. Communication is automated, via the mobile network, while I sleep with a report sent to Wellington Hospital after any notable event.

I then moved to a new norm that provided less activity, slower and shorter walks, a more restricted diet, and the additional care and attention needed for the CRT-D, which it was hoped will provide a better lifestyle than previously – only time would tell. Could I cope? Of course I could, and I have! At worst, the defibrillator activates to keep me alive. At best it will not be needed and the new balance in my heart function should give me a fuller life than I have had for some time. It has not fired and I am still alive, though with new challenges thrown up as I approach the latter days of my life. In the first 3+ months after the new unit was fitted my heart output increased somewhat and I was able to walk for over 2 km and play a full game of bowls again.

## Atrial fibrillation - a consequence of CHF

Five weeks from mid-July 2015 were for Margaret to spend time in Germany visiting our son and his family in the small village of Weissach im Tal, about 30 km north-east of Stuttgart. Because of my inability to gain travel medical cover for cardiac events, I was not to accompany her, but could spend the time in tropical North Queensland as there is reciprocal Australia—New Zealand medical cover. However, the timing of the implantation of my ICD necessitated Margaret rearranging her schedule and spend a little less time with the family. My visit to Queensland was dependent on the success of the implantation and its subsequent testing. Margaret's visit ran to schedule except that she slipped on a lakeside bank and partially tore a tendon in her left ankle. It required medical attention and she had to cancel scheduled visits



to Berlin and London. Her arrival back in Wellington saw her wearing a large medical boot, and was followed by a consultation with an orthopedic surgeon who allowed further travel, but with added caution. Fortunately, all her medical and other added expenses were met by her insurer. A clear case of *never go without it!* And so we took a holiday in Cairns starting in early August and that provided the necessary R&R in the warmth and sun.

## ***Complacency and Cardioversion***

Because the 2015 mid-winter holiday was curtailed, February 2016 saw us visit Melbourne for a few days before visiting Adelaide, touring the city during its annual festival, exploring the Adelaide Hills, and taking a day tour in the Coorong. All very enjoyable and without incident. I raise this because for the first time I used the airline wheelchair facilities. By then, my slower speed and inability to rush necessitated a longer transit time and it would become impossible should a connection time fall because of delays. I was and am happy to be seen as old and decrepit *if* it makes for a markedly more pleasant journey. The service is now routinely used and usually good. I have been disappointed only once – in Sydney International where the staff member pushing the wheelchair wanted to abandon me at every possible opportunity. Returning from South Australia to the cooler late summer weather in Wellington was enough to convince that we would need some time in the winter sun. We booked another break in Cairns, this time located within the city. I had begun to feel the cold more than before the 2014 coronary arrest and it provided the needed warmth. It was good and incident free.

The remote monitoring of my CRT-D continues without notice and the routine manual checks at the (now) Wellington Regional Hospital are annual. As the 2016-2017 bowling season started, I found it difficult to keep up to the normal games. My club mates were (and are) very supportive but the club championships with two games per day had to go. However, by the end of the season I was able to play the full afternoon and the monthly interclub galas with assistance from a colleague taking one of the three games for me. Nevertheless, my heart function continued to deteriorate and it no longer provides the output to cope with what I did. Walking became more difficult and the daily walk to my office reduced to about 1.5 km.

Planning holidays for 2017 was for separate ones in the New Zealand winter. Margaret to re-visit Germany and the family there while I would be in the winter sun of Cairns. However, we took two other shorter breaks. February saw us visit New Plymouth on the north island west coast to see the new Len

Lye kinetic sculpture museum. A fascinating visit that surpassed the one to original museum some years ago. By then my heart function had deteriorated further, to the extent that walking distances had to be reduced with slopes impossible. Use of my mobility-parking permit increased. This meant a hotel on the flat in hilly New Plymouth and this is now the new norm. Following the weekend, we returned home via the spectacular "*Forgotten Highway*" that runs 150 km north-east from the inland side of Mt. Taranaki at Stratford, to Taumaranui in the King Country on the main trunk railway line from Wellington to Auckland. It was one of the journeys I had wanted to take for many years – on the bucket list if you like. Once back in Wellington we settled on taking a few days in Hamilton to visit friends and relatives whose new homes I had not seen. This we did with a little extra time taken at Rotorua to enjoy the hot pools and take markedly more gentle strolls than previously; more things were beginning to take more effort as a consequence of CHF, difficult to take but certainly predicted after the late 2014 events. As must be obvious, my time in the office at Victoria University dropped to four 6-hour days a week, still writing and editing - and I continue to enjoy it.

Despite this, the 2015—mid-2017 period proceeded with minimal cardiac disturbance. The early year CTR-D check at the hospital did, however, ring alarm bells. There were problems resolved only after a chest X-ray that showed the newly inserted third lead to the left ventricle was too close to a muscle for comfort. Its location in my heart had the CRT-D registering muscle electrics rather than heart ones. If the problem could not be solved I was not going to come home but have a new lead implanted as a matter of urgency! However, after much pulling and pushing, and after turning the pacemaker off momentarily (one of my more unpleasant experiences), the implant sensitivity was reduced a little. It worked and has been fine since.

Once in Cairns in July, I played bowls at the Edge Hill Club, where I received a very pleasant welcome. Unfortunately, their green is uncovered and completing an afternoon of bowls in the 30°C heat meant that my fluid intake ran beyond the 1500 mL but not to more than 1600 mL, which I had been told would be appropriate. When I found the West Cairns club had a covered green I went there. The great welcome and playing in the shade led to spending two very pleasant and enjoyable afternoons there each week. Nevertheless, I found myself waking in the night short of breath and feeling somewhat unwell; I thought of terminating the holiday and returning home but was more or less back to normal within a day or so after taking an additional furosemide tablet; I stayed. I should have remembered what I had written in the first edition of this booklet (P. 46) - *I must now watch my weight and breathlessness – indica-*

*tors of fluid retention*. The weight did not change but my complacency failed to trigger that night time events needed to be recognised. It is ingrained on my memory now.

Within a couple of days of returning to Wellington Dr. Matsis' secretary phoned to say that my scheduled August appointment needed rescheduling. My response was that a check would be better sooner than later and I settled for August 7 in the late afternoon. The ECG recorded that day showed that I was suffering from atrial fibrillation (AF; arrhythmia), that is that I had irregular or abnormal heart rate as indicated by the schematic of J. Heuser in Wikipedia and shown below. It was detected in me previously but inconsequential at that time. The CRT-D output from the remote monitoring just before I left NZ (done only at home and not overseas) showed that it was happening then and it was regarded as the likely cause of my breathlessness in Cairns. It needed attention.

The correction of AF is made by a procedure termed *cardioversion*. It involves giving the heart an electric shock to revert the electrical activity to normal. More correctly it is the application of direct-current or DC for cardioversion; it is similar to defibrillation, but uses much lower levels of electrical power. Delivery of direct current (DC) shocks to the heart was successfully first used as long ago as 1775 when the Danish veterinarian named Abildgaard reported its use to both induce and revive a hen from lifelessness. DC current to treat human ventricular fibrillation began in 1947.

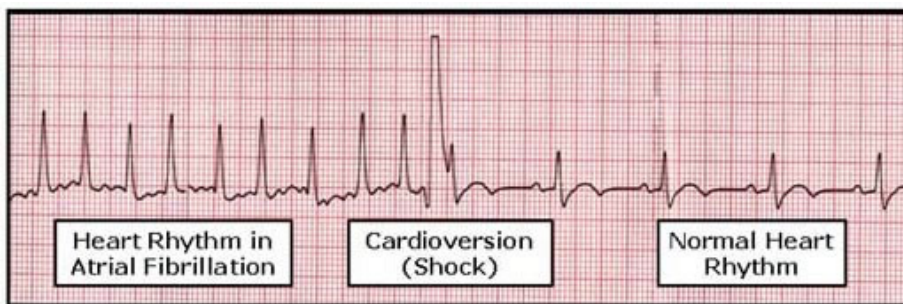
Thus, people whose electrical signals are irregular have a cardioversion to make the heart beat at a regular rate. Prior to the shock(s), conduction does not travel properly through the upper chambers of the heart. The shock(s) are



Scheme of atrial fibrillation (top) and sinus rhythm (bottom). The purple arrow indicates a P wave, which is lost in atrial fibrillation

administered through electrodes attached to the chest whilst the patient is sedated. The high-energy impulse simultaneously activates the cardiac muscle and conduction tissue. The electrical repeating cycle is broken and the arrhythmia stopped. When the sinus node begins to fire again a normal heart rhythm is restored. It is a quick and convenient and takes less time than when done solely with medications. One's cardiologist can see instantly if the procedure has restored a normal heartbeat. For me, cardioversion was scheduled for early October, 2017. However, prior to the actual procedure one is put on amiodarone (Cordarone), an antiarrhythmic medication, for at least a month. This is the only medication that I have had an unpleasant reaction to as my stomach objected to it.

The actual procedure, performed in the cardiology department of a hospital, is best described as somewhat like the electric chair, but markedly more acceptable and on a comfortable bed!



Reproduced from *DC Cardioversion* by Dr Ian Menown and published with permission; see: <http://www.heartconsultants.co.uk/dc-cardioversion>

A sedative (from which one recovers) is given and the shock administered; I did not feel anything during or after its administration. Once in Wakefield Hospital, my anaesthetist for the day (Dr Geoff Carden) came to see me, entered the room addressing me by my title and then referring to the research I did at Victoria University. My surprise was evident and he proceeded to tell me he took a mid-1990s second-year chemistry class I taught. In response, I had but two options to offer and said "You can either be kind to me this afternoon, or get your own back". He was kind and clearly very competent. Because I have an implanted defibrillator, the DC shock delivered to me was from it (power reduced) as opposed to two pads on the upper chest. The advantage is that it avoids the risk of a skin irritation but it does consume some of the battery power in the device; for me this was a reduction in the CRT-D lifetime of just a few months. The worst part of the exercise resulted from attempts to per-

suade the pacemaker to do the job simply by adjustment and, for the second time, I just about passed out when it was switched off. I now have no electrical connection between the upper and lower chambers of my heart – the CRT-D keeps my heart beating and without it I would quickly become history!

In the new recovery room following the brief procedure, vital signs were monitored. As I was recovering from the small dose of anaesthetic, I did not register that the nurse was monitoring my blood pressure in my left arm. She became very concerned with the low reading, recalled the anaesthetist, and had the problem solved by him suggesting using my right arm whose artery is intact; recall that my left arm radial artery was recycled in 2002 for bypass surgery. From there it was back to the hospital room and discharge home later in the afternoon after seeing Dr Matsis. He told me that my heart rhythm was back to normal.

The recovery was supposed to be simple and straightforward with improvement becoming obvious after a few days as the heart muscles readjusted to their new norm. Unfortunately for me, this was not the case and I felt just the same. My GP, suspected that the cordarone medication (which I was still on) could have an impact, but subsequent X-ray diagnoses eliminated lung and liver involvement. At this consultation, I made comment about exercise ability and the like, and Richard Hornabrook made a comment that was true and remains with me. He reminded me that he had never told me to take it easy. He agreed that it is only when you stop and feel that you have done too much that you have – *knowing when enough is enough is never attainable!* The subsequent cardiology post-cardioversion check in early November confirmed that paced rhythm was present and the same as after the electrocution. I was still unwell despite removal of the cordarone from my medications. But then, this drug has a half-life of up to six-months in the plasma and its impact, if any, is still with me and will be until April 2018 or later and it is only four months since the cardioversion as this is being penned.

Life ran on the same course of reduced activity until a week before Christmas when another bout of heart failure became evident. The symptoms were as earlier with shortness of breath and some abdominal discomfort, but I did not know whether it was this or caused by the cordarone medication. One of its known side effects is feeling short of breath, even with mild exertion and my other usual indicators of CHF are an increase in weight and/or swelling of the ankles. Neither of these had changed over the previous couple of months. However, my arterial oxygenation level was low. A normal reading from a (finger) pulse oximeter range from 95 to 100%; mine was 84%, low

but not sufficient to require supplemental oxygen, yet enough to imply most things were an effort. It is termed hypoxemia. A telephone conversation between my GP and cardiologist followed and resulted in additional furosemide. For the first time, this had a dramatic effect with the loss of 1.6 kg in weight over the 24-hour period and a dramatic improvement in my wellbeing even though shortness of breath on exertion persisted. By Christmas, I was back to my post-electrocution norm.

Following the traditional New Zealand Christmas break, 2018 turned on spectacular (for it) hot summer weather, even in Wellington, with temperatures rising to the upper 20°C level. As far as I am aware, none of this affected me and was never too hot. However, the day before the Wellington Anniversary holiday followed another night of breathlessness, pain in the lower abdomen after lunch, and a general feeling of lethargy. The day after the holiday I returned to the office, still not feeling too well but good enough to clear the desk. By mid-afternoon, I called my wife to take me home. This occurred only after a diversion to our medical centre. My own GP was absent that afternoon and one of the nurses took my blood pressure (high), my oxygenation level (low), and an ECG. The last of these was the same as after the cardioversion and the GP who attended me did not believe I had suffered another (9<sup>th</sup>) heart attack. However, blood tests were called for, taken early the next morning and again the following day, and showed a rise in the troponin T level. Troponin T is released from the cardiac muscle after damage to the heart. It is measured in nanograms per millilitre (ng/mL) with a normal value of <14 nm/mL. After my 2014 Christmas heart attack it was over 400, at 22 following the November 18, 2014 incident, and 38 (January 24, 2018) and then 32 a day later. Pain in my abdomen remained and Richard Hornabrook suggested that this could result from the colon diverticulitis. He prescribed Augmentin, one of the penicillin antibiotics and within a week, I felt that I was back to normal; a report was sent to Phil Matsis, my cardiologist. Some 10 days after the initial event, I was able to walk the reduced (pre-Christmas) distance to the office and a couple of days later a more acceptable (to me) 1 km. This disruptive event is yet unclassified but is undoubtedly *another cardiac event of some sort* and known in to occur in patients with significant heart disease and CHF, and I am one. It appears that involvement of the diverticula can be involved if one suffers from CHF. What I now wonder is just how much of my heart muscle remains for damage in the future.

My scheduled cardiac check with Matsis on March 6 took place as expected and the routine ECG showed no changes from previously. I gathered that there is sufficient undamaged heart muscle for more heart events. However,



because of the breathlessness and decreased walking ability, it was thought that I was over-medicated; the 4 mg tablet of candesartan was halved to 2 mg daily. I was asked to monitor any changes and report back by e-mail ten days later. During the intervening period the breathlessness deteriorated somewhat and the change to medication had little impact, if any. The monitoring continued with another report scheduled for the following week. By that time the breathlessness had worsened and walking had become noticeably more difficult. This report led Phil Matsis to say he would check my medication the following day. Having seen no improvement in breathlessness or overall energy with the medication change Matsis called me back for another face-to-face assessment. This took place on March 26, 35 years and one day after my first infarct. The outcome was immediate referral to Wellington Public Hospital for a variety of checks so that my medication regime could be more appropriately monitored – at my stage of life this becomes more of a balancing act than anything else. So, the afternoon of March 26 saw me back in the CCDHB Regional Hospital for a short 35<sup>th</sup> anniversary holiday. I was put on added in-travenous furosemide and oxygen. Within hours my hypoxemia had improved and blood pressure was closer to my normal. Medications were juggled with the candesartan returned to its former 4 mg daily and metoprolol withdrawn. After a night on supplemental oxygen, a new medication, spironolactone, was added; my Pacemaker was checked later that day. This showed that I had had three episodes of atrial fibrillation with one fairly lengthy and this resulted in the reinstatement of metoprolol. The next morning, I was taken off oxygen to see how I went and an arterial blood sample taken for gas analysis (the Registrar who took it forgot to return to have me remove pressure on the artery and this soon circulated among the nursing staff!). This analysis proved that I was short of oxygen from the low oxygen partial pressure recorded and that the saturation was also low. It resulted in a recommendation for nightly home oxygen.

As the hospitalisation in the Newtown Resort was in the week leading to Easter, I did not expect to stay over the holiday weekend and this proved to be the case; I was discharged on Thursday afternoon with a diagnosis of CHF exacerbation. This short holiday demonstrated changes in the hospital, even since my 2014 and 2015 visits. The kindly volunteer and his wife who delivered the daily morning DomPost newspaper and asked that any small change be donated to the Hospital Foundation, is retired and not replaced; likely too many now read the news on-line. The cups are now biodegradable paper and of larger volume (250 mL; 500,000 every 2 months according to the “Please Use Wisely” notice), and are often dispersed in pairs to allow for ease of han-

dling. The coronary care nursing staff, while perhaps reduced by one member, remain dedicated, excellent and generally willing to go the extra mile for the patient.

Discharge had me markedly better than I was on admission and I was back at home for Easter. I had not expected to hear about the home oxygen until after the holiday period, which was the case, but it came as quite a surprise to receive a phone call from Margaret telling me that a condenser had appeared on our door-step while she was out. It came with no instructions and we had not been advised that my case had been approved. All was sorted, however, when the local District Nurse arrived, set the unit up, and checked my blood pressure (105/58) and oxygenation (95% after less than an hour on the oxygen). The result of these events now has me looking forward to drifting into old age with my days in the office coming to an end sooner than I might have imagined but in my 50<sup>th</sup> year at Victoria University of Wellington. I anticipate spending more time on my hobbies, and especially my photography that goes under to alter ego of NotlaB.



## Postscript

I still have no complaints. The relationship with my wife, family and friends remains strong and on-going. My professional life remains full and profitable, though the time for full-time retirement is not too far away. I thank my colleagues in chemistry at Victoria University of Wellington, the postgraduate students who have maintained contact either as friends or as professional colleagues, and those collaborators overseas. My church is supportive both in and out of hospital. Finally, all that I hope for with this revised and extended edition is that it helps others. If it does that for even one individual then my time is well spent. The Cat of Nine Lives will not go to a third edition.

Despite living with heart disease for so long I continue to enjoy a full, enriching and rewarding life. Would I change any of it? To avoid the heart condition it would be easy to say yes but, realistically, NO. I very much doubt if I could have done any better any other way. So:

*"Am I a cat?"*

*"No, not a little moggie – definitely a tiger" – **and the beat goes on!***

## Timeline of cardiac events

March 25, 1983	Infarct 1
May 17, 1983	Angiogram 1
July 25, 1983	Coronary Artery Bypass Graft Surgery
January 6, 2000	Infarct 2
January 25, 2000	Angiogram 2/Angioplasty 1 – Stents 1 & 2
June 14, 2002	Infarct 3
June 24, 2002	Angiogram 3
August 13, 2002	Angiogram 4/Angioplasty 2 – Stent 3
September 23, 2002	Infarct 4, Angiogram 5
November 28, 2002	Redo CABG surgery
December 29, 2003	Infarct 5
December 31, 2003	Angiogram 6/Angioplasty 3 – Stents 4 & 5
April 27, 2004	Infarct 6/Angiogram 7/Angioplasty 4 – Stent 6
September 2, 2007	Collapse with fall from 2 m high tree Holter monitoring for possible Pacemaker
November 13, 2007	Collapse and kept in hospital for Pacemaker Implanted 20 Nov 2007
March 10, 2014	Infarct 7
March 17, 2014	Angiogram 8/Angioplasty 5 – Stent 7
November 18, 2014	An unexplained cardiac event
December 18, 2014	Angiogram 9/Angioplasty 6 – Stent 8
December 23, 2014	Infarct 8
December 24, 2014	Ventricular fibrillation (Coronary Arrest) Angiogram 9/Angioplasty 7 – Stents 9, 10 & 11
January 23, 2015	Fluid imbalance; cardiac care Wellington
June 30, 2015	Implantation of three lead Cardioverter; de-fibrillator with pacing capabilities (CRT-D)
November 6, 2017	Cardioversion
January 21, 2018	Another unexplained cardiac event
March 26, 2018	CHF exacerbation – readmission to hospital

## About the Author



Brian Halton arrived in New Zealand in September 1968. He was born in Lancashire and educated there and in London prior to entering the University of Southampton in 1963. He gained Bachelor's and Doctoral degrees (1963 and 1966), then experience at the University of Florida prior to appointment as Assistant Professor in 1967. He transferred to the Victoria University of Wellington in New Zealand in 1968 and spent his career teaching and researching there. Initially a lecturer in chemistry, he rose to become professor, and has published some 240 articles in his chosen field. He has been an Emeritus Professor of Chemistry for 14 years.

Brian has served on various international committees and boards, and remains a referee for many prominent international chemistry periodicals. He was the first of two Honorary Fellow of the New Zealand Institute of Chemistry elected in the 21<sup>st</sup> century. He edited the flagship journal *Chemistry in New Zealand* for some ten years from 2001. In his retirement, he has provided an autobiography that surveys his fifty years as a practising organic chemist and written a history of the Chemistry Department at Victoria over its first 100 years from the viewpoint of the chemist rather than a historian. These books are available for free download from the School of Chemical & Physical Sciences website: [www.victoria.ac.nz/scps/history](http://www.victoria.ac.nz/scps/history).

The present booklet had its origin in comments made during Brian's hospitalisations in March and December 2014, and appears now in its second edition following further cardiac events. He has lived with serious heart disease for 35 years through eight infarcts, numerous angioplasties, cardioversion and some unexplained events. He recounts here the trials and tribulations and successes in his life since 1983.